

Handling Precautions



CAUTION

High potential static charge may cause damage to the integrated circuits on the board. Before handling any mainboard outside of its protective packaging, ensure that there is no static electric charge in your body.

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

There are some basic precautions when handling the motherboard or other computer components:

- ◆ Keep the board in its anti-static bag until you are ready to install it.
- ◆ Protect your board from static electricity by well grounding of your body and the equipment during the installation, such as wearing a grounded wrist strap.
- ◆ Always handle the board by its edges.
- ◆ Do not touch the components on the boards, add-on cards/modules and the “gold finger” connectors plugged into the expansion slot. It is better to handle system components by their mounting bracket.
- ◆ Ensure the system power is completely turn-off before doing any installation work.

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Table of Contents

OVERVIEW.....	4
AUTO JUMPER.....	4
FEATURES SUMMARY.....	5
MAINBOARD INSTALLATION.....	6
CPU CARD INSTALLATION.....	7
INSTALLING SYSTEM MEMORY (RAM).....	8
EXPANSION CARDS INSTALLATION.....	9
CONNECTING EXTERNAL CONNECTOR.....	9
“AUTO JUMPER” GUIDE.....	16
“SMARTDIMM” GUIDE.....	17
QUICK INSTALLATION GUIDE.....	18
AMI BIOS SETUP.....	26
STANDARD CMOS SETUP.....	27
CPU CONFIGURATION SETUP.....	29
ADVANCED CMOS SETUP.....	30
ADVANCED CHIPSET SETUP.....	33
PCI/PNP SETUP.....	37
POWER MANAGEMENT SETUP.....	40
PERIPHERAL SETUP.....	43
QUICK REFERENCE OF MOTHERBOARD.....	46



Features of the Board

OVERVIEW

Congratulations on purchasing the highest performance PENTIUM II® or Celeron® motherboard. With the advanced technologies available today, this motherboard is designed to optimize for Intel's PENTIUM II® processors at speeds of 233 MHz and 333 MHz or higher. Three unbuffered, 3.3 Volts, 168-pin DIMM sockets are included for supporting SDRAM. A Slot 1 connector allows an easy upgrade path for the future PENTIUM II® processors.

This motherboard utilizes Intel's 82440LX/EX PCI & 443BX/ZX PCI chipset. The Intel 82371AB PCI/ISA IDE Xccelerator (PIIX4) provides an integrated Bus Mastering IDE controller with two high performance IDE interfaces for up to four IDE devices (such as hard drives or CD-ROM). The integrated super I/O controller integrates the standard PC I/O functions: floppy interface, two FIFO serial ports, one EPP/ECP capable parallel port, and support for an IrDA and Consumer Infra Red compatible interface.

This mainboard is designed to support the new graphic interface standard, Accelerated Graphic Port (AGP). The AGP interface can reach a theoretical ~532Mbytes/sec transfer rate for 3D graphics data. On the other hand, the on-board 32-bit PCI local bus slots allow a high bandwidth data path, which serves as a super highway, for intensive data-movement such as networking. The BIOS support PCI bridge user configuration, which allows for further expansion of the system with PCI peripherals. Up to two 16-bit ISA slots allow this board to be backward compatible with the older expansion card. A total of six expansion slots may be populated with full length add-in cards, since one PCI and ISA slot share the same chassis I/O panel.

AUTO JUMPER

This mainboard is within our "Auto Jumper" series, which eliminates the necessity for the user to be bored by jumper settings on the motherboard. It is capable of detecting the CPU brand and core voltage, setting the appropriate CPU speed according to instructions from the user through CMOS setup menu.

In addition, two "safe keys" are defined. Pressing "**F**" during power on clears the CMOS RAM data, while pressing "**J**" during power on re-detects CPU in "Auto Jumper" mode.

FEATURES SUMMARY

This motherboard comes with following features:

- Supports Intel PENTIUM II® or Celeron® Processor 233/266/300/333 MHz with automatic voltage adjustment.
- Intel 440LX/EX PCIset, with 82443LX PCI/Memory controller (PMC) and 82371AB PCI ISA IDE Accelerator (PIIX4).
- Intel 443BX/ZX PCIset, with 82443BX PCI/Memory controller (PMC) and 82371AB PCI ISA IDE Accelerator (PIIX4).
- AMI PnP BIOS with support for power management, enhanced IDE/SCSI features and desktop management interface (DMI) which allows higher level of hardware compatibility.
- Flash BIOS for a more easy upgrade path.
- Three 168-pin DIMM sockets support up to 384MB SDRAM for LX98 Series.
- Two 168-pin DIMM sockets support up to 256MB SDRAM for EX98.
- Two 168-pin DIMM sockets plus One additional DIMM socket for optional upgrade up to 256MB SDRAM for LXe Series.
- Three 168-pin DIMM sockets support up to 768MB SDRAM for BXi-Series.
- Two 168-pin DIMM sockets plus One additional DIMM socket for optional upgrade up to 256MB SDRAM for BXe Series.
- One Accelerated graphic port (AGP) for AGP card.
- Two 16-bit ISA expansion slots and four 32-bit PCI expansion slots.
- Integrated two PCI bus mastering Ultra IDE controller with two on-board connectors supporting up to four IDE devices such as Hard Disk, CD-ROM or Tape Backup drives.
- Integrated super I/O chip featuring one floppy disk controller, two 16550 UART compatible serial ports, one high speed EPP/ECP parallel port, one Infra Red port.
- Supports “Auto Jumper ” for detecting CPU configurations.
- WAKEUP-LINK interface header supporting Intel Wake-On-LAN
- TA-LINK interface header supporting E100+ PCI LAN card using the Intel 82558 PCI LAN chipset.
- SB-LINK interface header supporting Creative™ AWE64D PCI 3D sound card
- TB-LINK interface headers supporting SCE8/SCV6 sound card using the Creative™ Audio chip.
- Support either an AT or an ATX power supply
- Support “ Modem Ring Wakeup “
- With a On-Board Genesys GL520SM Hardware Monitor



MAINBOARD INSTALLATION

Installation Precautions

During installation and initial test, use caution to avoid personal injury and damage to wiring due to sharp pins on connectors and printed circuit assemblies, rough chassis edges and corners, and hot components. Adhere to warnings and limitations regarding accessibility into areas designated only for authorized technical personnel.

A Quick Introduction

To Install and operate your the new motherboard, you must follow the steps below:

1. Install the CPU with cooling fan
2. Install RAM modules
3. Connect cables, wires and power connector
4. Install expansion cards

Auto Jumper

After hardware installation, the user should select the appropriate CPU speed in the “CPU CONFIGURATION SETUP” menu within the CMOS setup. Notice that there exists no jumper on this mainboard. The user may clear the CMOS content by pressing “**F**” key while switching on the system.

If a wrong CPU speed is selected, the system may behave unstable, causing the user not being able to get into CMOS setup. Pressing the “**J**” key while switching on the system can make re-selection in this case.

CPU CARD INSTALLATION

The mainboard provides a 242-pin CPU card slot. The CPU card should have a fan attached to it to prevent overheating. If this is not the case then purchase a fan before you turn-on the system. There is one CPU fan power connector named J17 on-board.

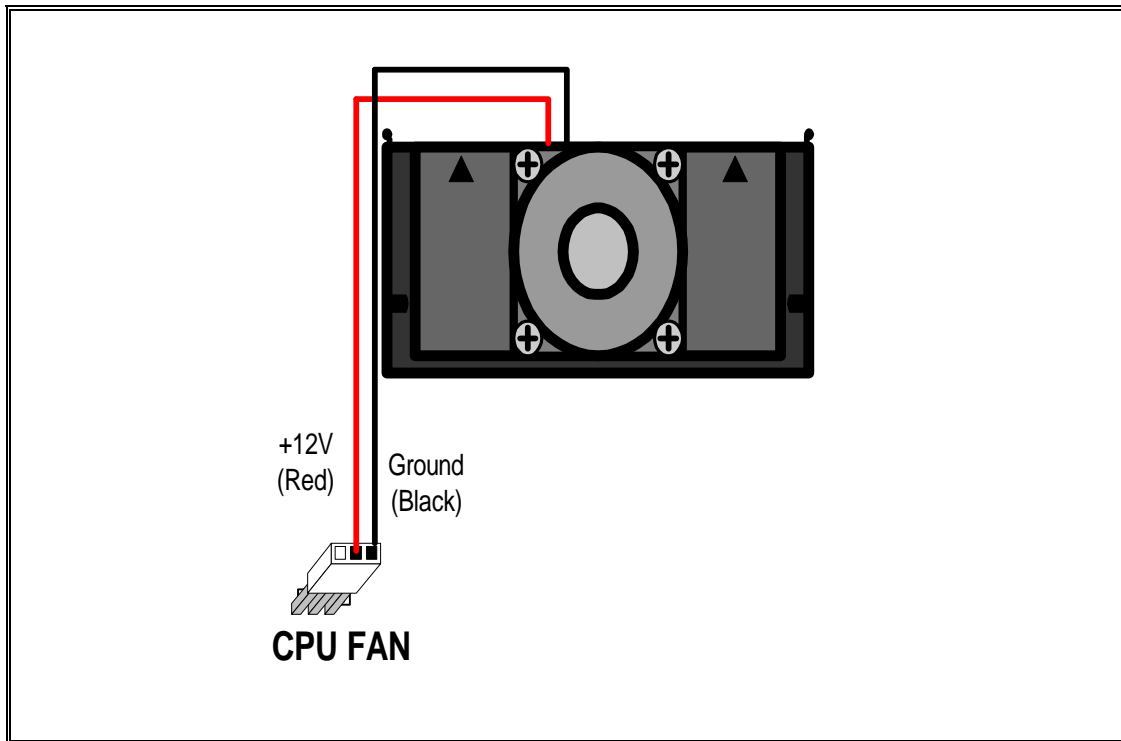


Fig. 2 CPU Cooling Fan Installation Diagram

! CAUTION

Without an effective cooling fan, the CPU can overheat and cause damage to both the CPU and the motherboard.

CPU Cooling fan Connector

J17 provide the +12 Volts d.c. for your CPU cooling fan

J17	Signal Name
1	NC
2	+12V
3	Ground

INSTALLING SYSTEM MEMORY (RAM)

The motherboard supports three 168-pin DIMM. The three 168-pin DIMM sockets are divided into three banks and each bank can accept SDRAM module.

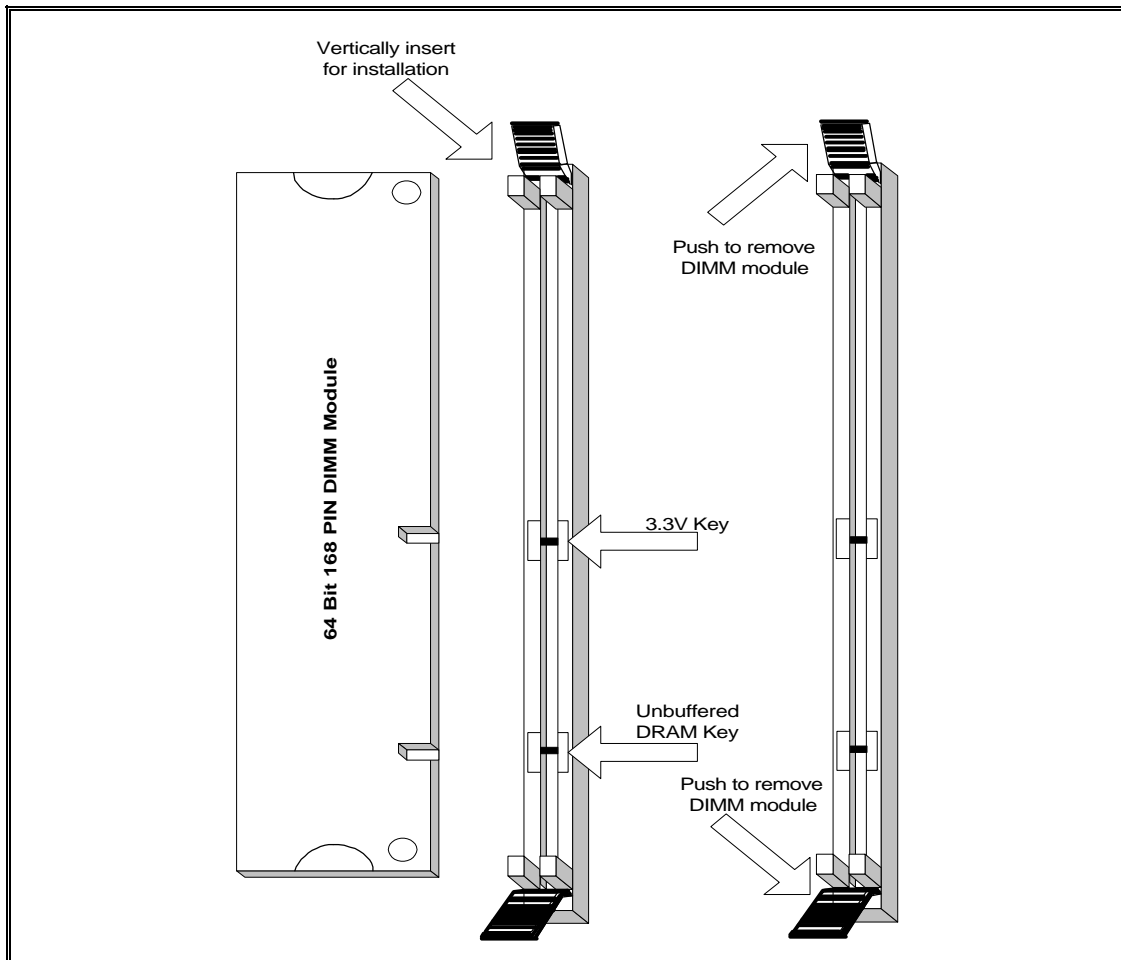


Fig. 3 168-Pin DIMM Module Installation Diagram

Expansion Cards Installation

At the most of beginning, you must read your expansion card documentation on any hardware and software settings that may be required. The installation procedures are summarized as below:

1. Read the User's Guide/Manual of your expansion card.
2. If necessary, set any jumpers on your expansion card.
3. Power-off the system and then disconnected the power cord.
4. Remove your computer's cover.
5. Remove the metal bracket from one of the empty slot, ISA or PCI, corresponding to the type of expansion card.
6. Carefully align the card's connectors and press firmly, make sure at the connection is good.
7. Secure the card on the slot.
8. Replace the computer's cover.
9. Setup the BIOS configuration if necessary.
10. Install the required software drivers for your expansion card.



CAUTION

Before adding or removing any expansion card or other system components, make sure that you unplug your system power supply. Failure to do so may cause damage of your motherboard and expansion cards.

Connecting External Connector

AT Power Connector

A 12-Pin power supplies provide two plugs incorporates standard $\pm 5V$ and $\pm 12V$, each containing six wires, two of which are black. Orient the connectors so that the black wires are together.

Pin	Signal Name	Pin	Signal Name
1	Power Good Signal	7	Ground
2	+5V	8	Ground
3	+12V	9	-5V
4	-12V	10	+5V
5	Ground	11	+5V
6	Ground	12	+5V

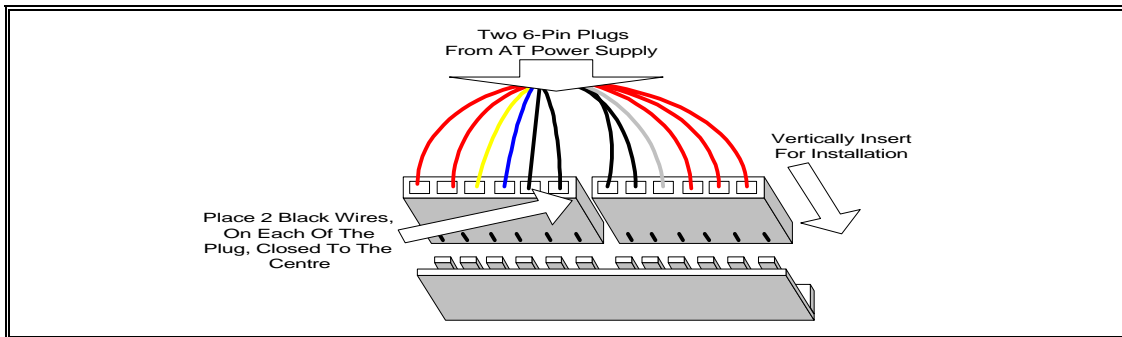


Fig. 4 AT Power Connector Installation

ATX Power Connector

A single 20-pin connector J3 incorporates standard $\pm 5V$ and $\pm 12V$, optional 3.3V and soft-on/off signals. With a power supply, that supports remote power on/off, the mainboard can turn off the system power through software control, such as the shutdown in Windows 95 Start menu. The system BIOS will turn the system power off when it receives the proper APM command from the OS. APM must be enabled in the system BIOS and OS in order for the soft-off feature to work correctly.

Pin	Signal Name	Pin	Signal Name
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PW_ON
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	PWRGOOD	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V

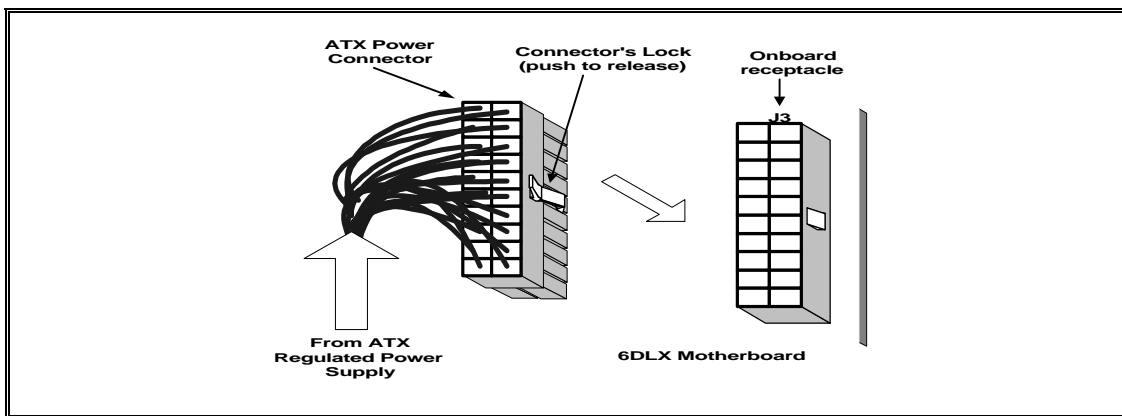


Fig.5 ATX Power Connector Installation

Floppy Drive Connector

This 34-pin connector supports the provided floppy drive ribbon cable. After connecting the single end to the on-board “FLOPPY” connector, connect the remaining plugs on the other end to the floppy drives correspondingly.

IDE Connector

The two on-board IDE connectors supports the provided 40-pin IDE hard disk ribbon cable. After connecting the single end to the board, connect the two remaining plugs at the other end of your hard disk(s). If you install two hard disks, you must configure the two drives by setting its jumpers according to the documentation of your hard disk. Also, you may connect the two hard disks to be both Masters using one ribbon cable on the primary IDE connector and one on the secondary IDE connector.



NOTICE

For the flat ribbon cable connection, please make sure that the pin 1 of the ribbon cable (the red wire side of the cable) is correctly connected to the on-board connector’s pin 1 as shown on the “Map of the Motherboard”.

Front Panel Function Connector

All the front panel indicator, speaker, and switch functions are grouped into a on-board 26-pin connector, JP9. Front panel features supported include:

- System Reset, RESET
- Power LED, form KEYLOCK
- Hard Drive activity LED, IDE LED
- System Speaker, SPEAKER
- Soft-touch button power on/off, SW ON
- Turbo LED, TBLED
- External power saving control, EXTSMI (optional)

The connector pin out are described as the figure below:

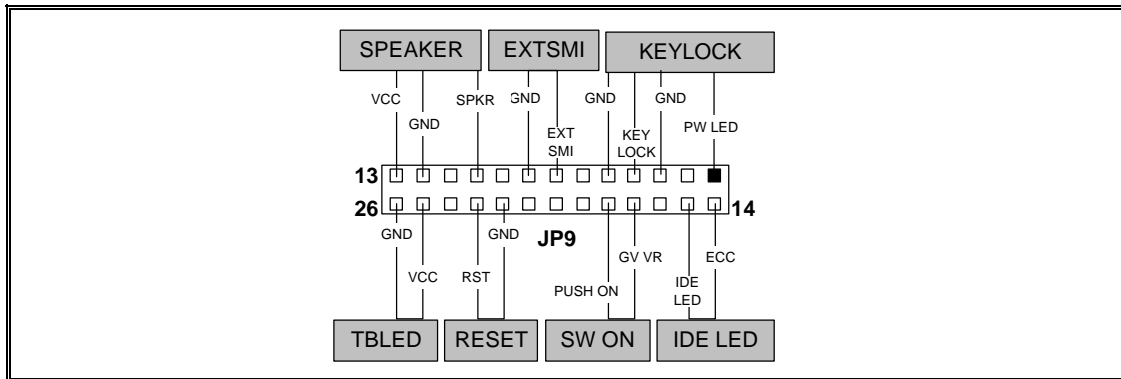


Fig.6 The Onboard Function Connector Pin Out

About Soft Touch Power Button

For the ATX system case, the new soft touch power button replaces the main power switch to switch ON / OFF your system. You can switch the system ON by pressing the button. If you want to switch OFF your system, press the button and hold it for 4 seconds. You can also change the functions of the power button in the CMOS setup at power management section.

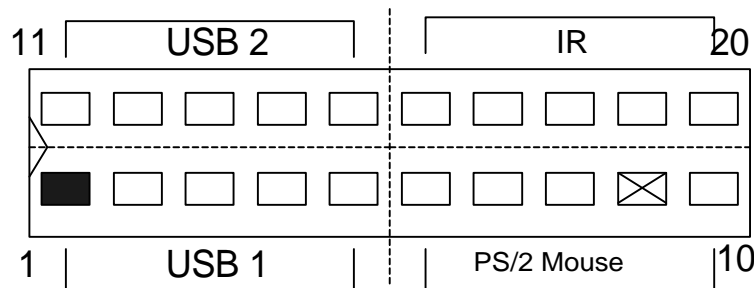
Integrated Function Connector

The total of two USB device connectors, a PS/2 mouse, and an Infrared devices are all allocated at this connector (JP2).

- Pin1 to Pin5 for USB1 connector
- Pin11 to Pin15 for USB2 connector
- Pin6 to Pin10 for PS/2 connector
- Pin16 to Pin20 InfraRed connector

The connector pin out signal definitions are described as the table below:

Pin	Signal Name	Pin	Signal Name
1 (USB1)	USB +5 Volt	11 (USB2)	USB +5 Volt
2	USB Port 1-	12	USB Port 2-
3	USB Port 1+	13	USB Port 2+
4	Ground	14	Ground
5	No Connect	15	No Connect
6 (PS/2 Mouse)	PS/2 Data	16 (IR)	+5V
7	PS/2 Clock	17	No Connect
8	Ground	18	Infrared Receive
9	No Connect	19	Ground
10	+5V	20	Infrared Transmit



REPLACING BATTERY

A 3V, CR-2030, Lithium battery is installed on the on-board battery socket. This battery is used to supply the CMOS RAM backup power during system powered-off. Danger of explosion if battery is incorrectly replaced. Therefore, if you have any difficulties, please consult to the technical personnel.

About Soft Touch Power Button

For the ATX system case, the new soft touch power button replaces the main power switch to switch ON / OFF your system. You can switch the system ON by pressing the button. If you want to switch OFF your system, press the button and hold it for 4 seconds. You can also change the functions of the power button in the CMOS setup at power management section.

Infra-Red connector

Serial port 2 can be configured to support an IrDA module via a 5-pin header connector. Once configured for IrDA, the user can transfer files to or from portable devices such as laptops, PDA's and printers using application software such as LapLink. The IrDA specification provides for data transfers at 115 Kbps from a distance of 1 meter. Consumer IR is also supported by the same connector.

JP15 Pin	Signal Name
1	VCC, power source
2	N/C
3	IRRX, infra-red receive
4	N/C
5	IRTX, infra-red transmit

I/O Back Panel Connectors

The I/O back panel allows external access to PS/2 keyboard and mouse connectors as well as two serial ports, and one parallel port, which are integrated on the motherboard. The following figure showed the location of the I/O connectors.

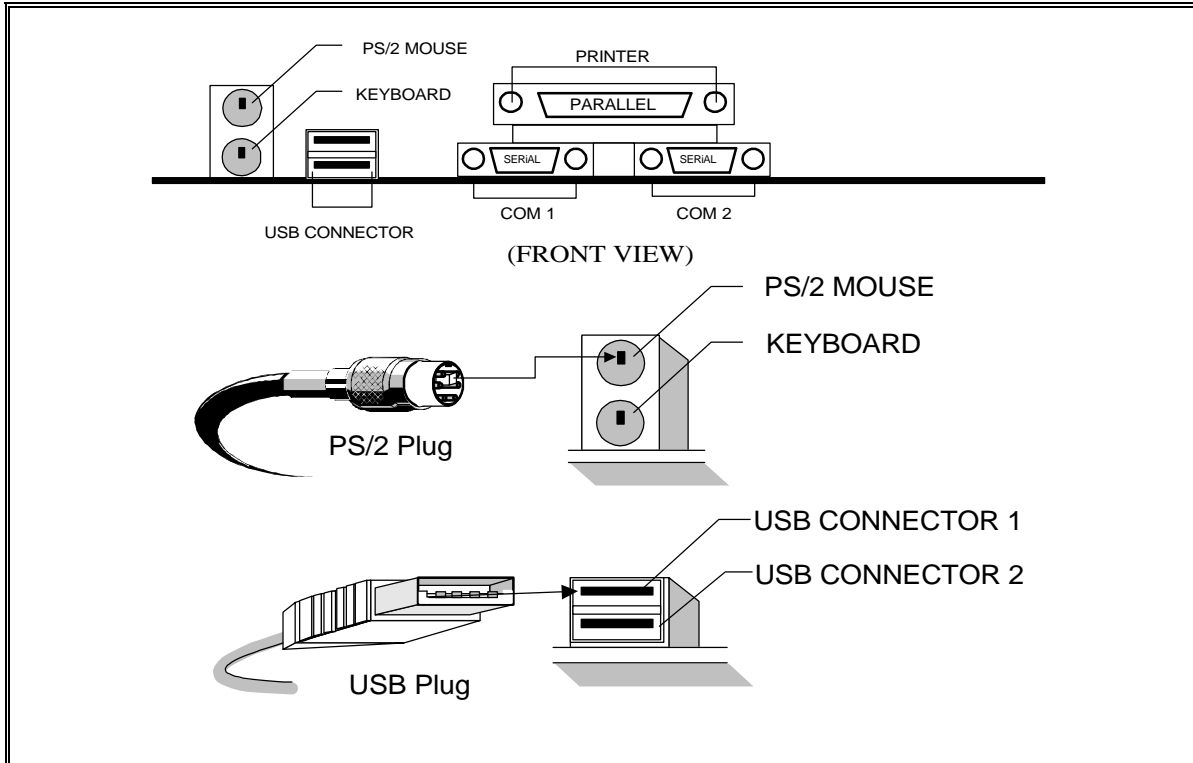
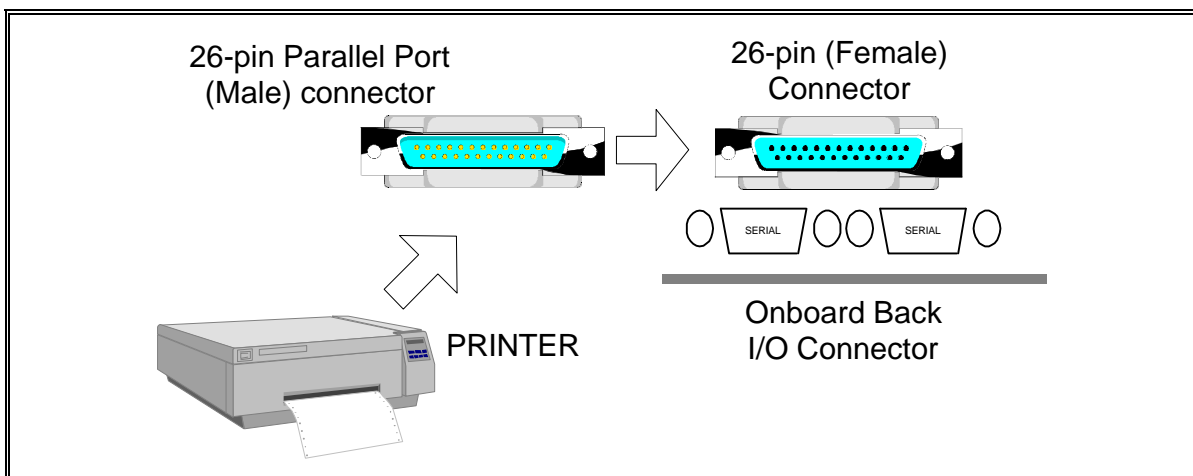


Fig.7 I/O Back Panel Connector Installation Diagram for PS/2 and USB



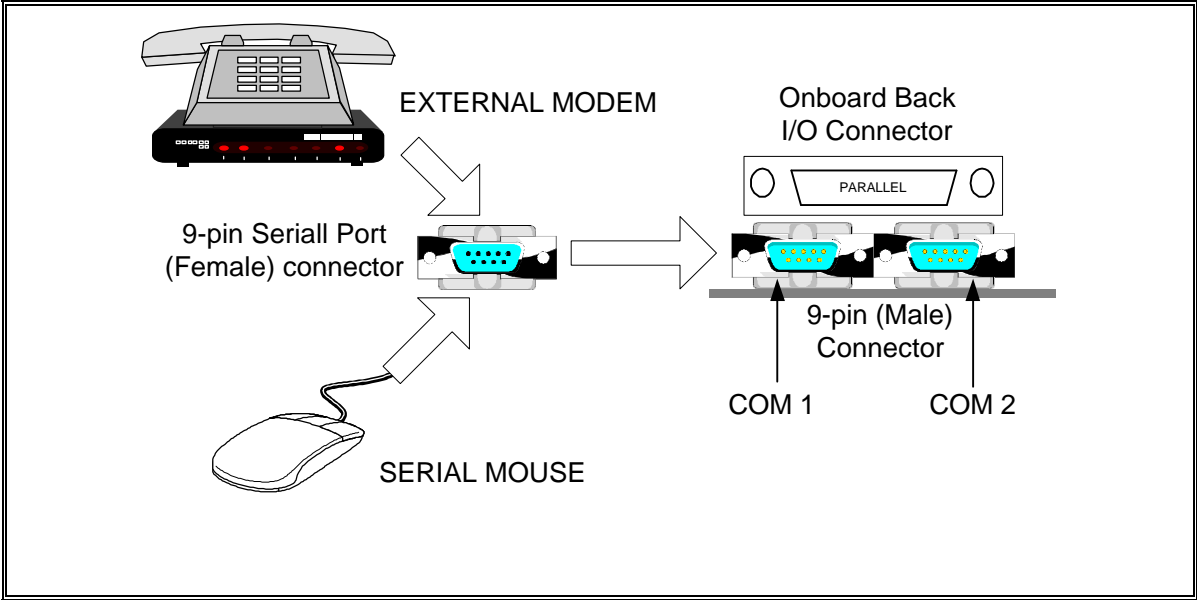


FIG. 8 I/O BACK PANEL CONNECTOR INSTALLATION DIAGRAM FOR SERIAL

“AUTO JUMPER” GUIDE

- You can just select the Pentium II or Celeron CPU speed easily through **CMOS** Setup Menu.
- To clear the **CMOS** contents, the user only needs to press the key “**F**” during power on.
- If a wrong CPU speed is selected, the system may behave unstable, causing the user not being able to get into CMOS setup. Pressing the “**J**” key while switching on the system can enable the user to make re-selection again.

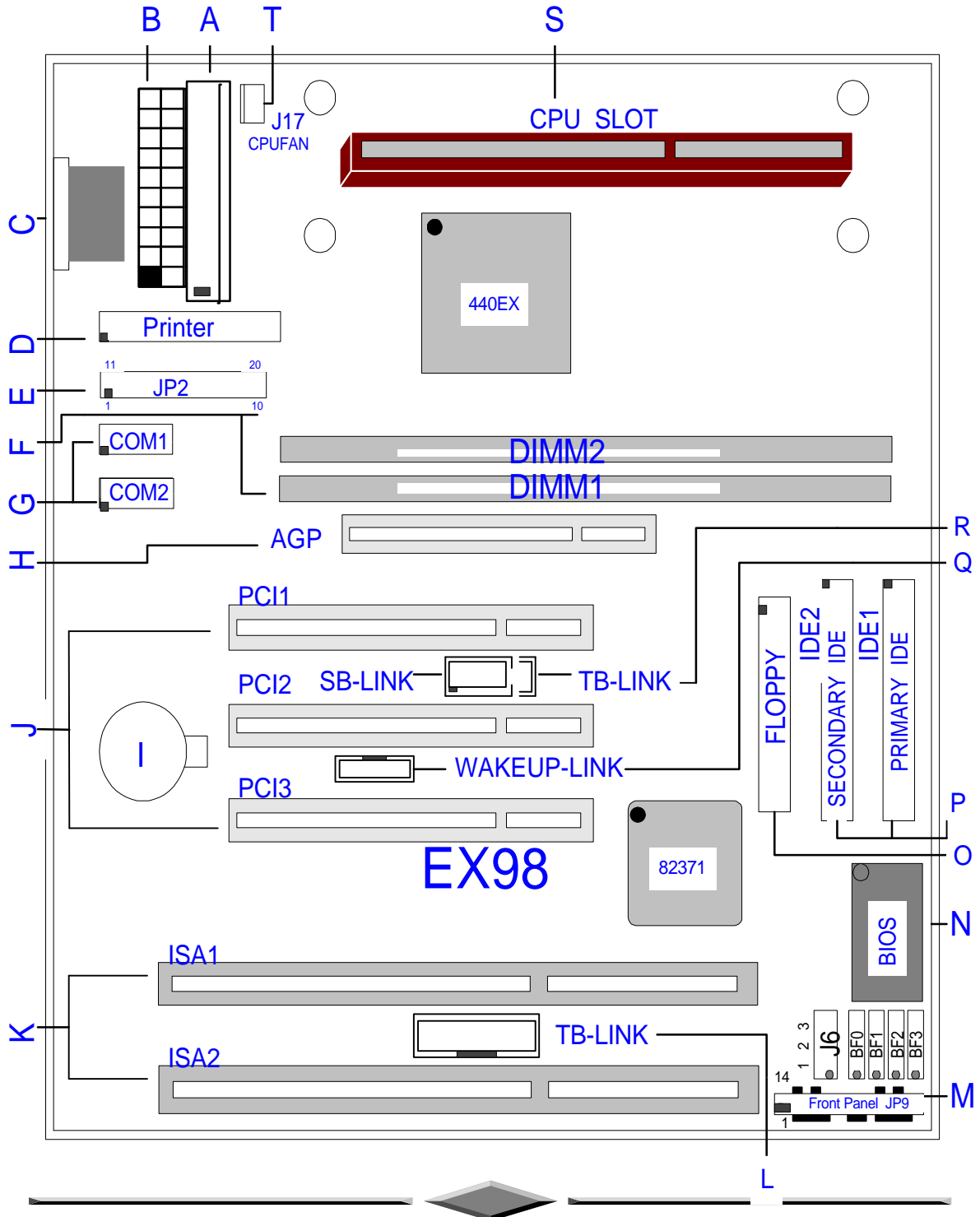
“SMARTDIMM” GUIDE

The **LXe/BXe** series step beyond the Intel 440EX & 443ZX specification limit by equipping with one extra DIMM slot in addition to two. This special **white** slot, named **DIMM3**, is for optional upgrade only. The use of DIMM3 can be described as follows:

- **with two or less DIMM modules, install on the black slots and let DIMM3 blank**
- **DIMM3 is used for upgrade only if the two black slots are both occupied**
- **if two single bank DIMM's occupies the two black slots,**
 - **one single-bank or double-bank DIMM upgrade is possible**
- **if the black slots contains one single-bank and one double-bank DIMM's,**
 - **only one single-bank DIMM upgrade is allowed**
- **DIMM3 would not be usable if double-bank DIMM's reside on both black slots**

SmartDIMM BIOS technology is employed in the **LXe series** to distribute unused memory banks from the first two DIMM slots to DIMM3. Memory upgrade to DIMM3 may require the user to rearrange memory modules among the three slots. SmartDIMM BIOS will give **red instruction** at startup on the details of DIMM rearrangement. In addition, **blue instruction** is also provided at startup as a hint for DIMM upgrade.

QUICK INSTALLATION GUIDE

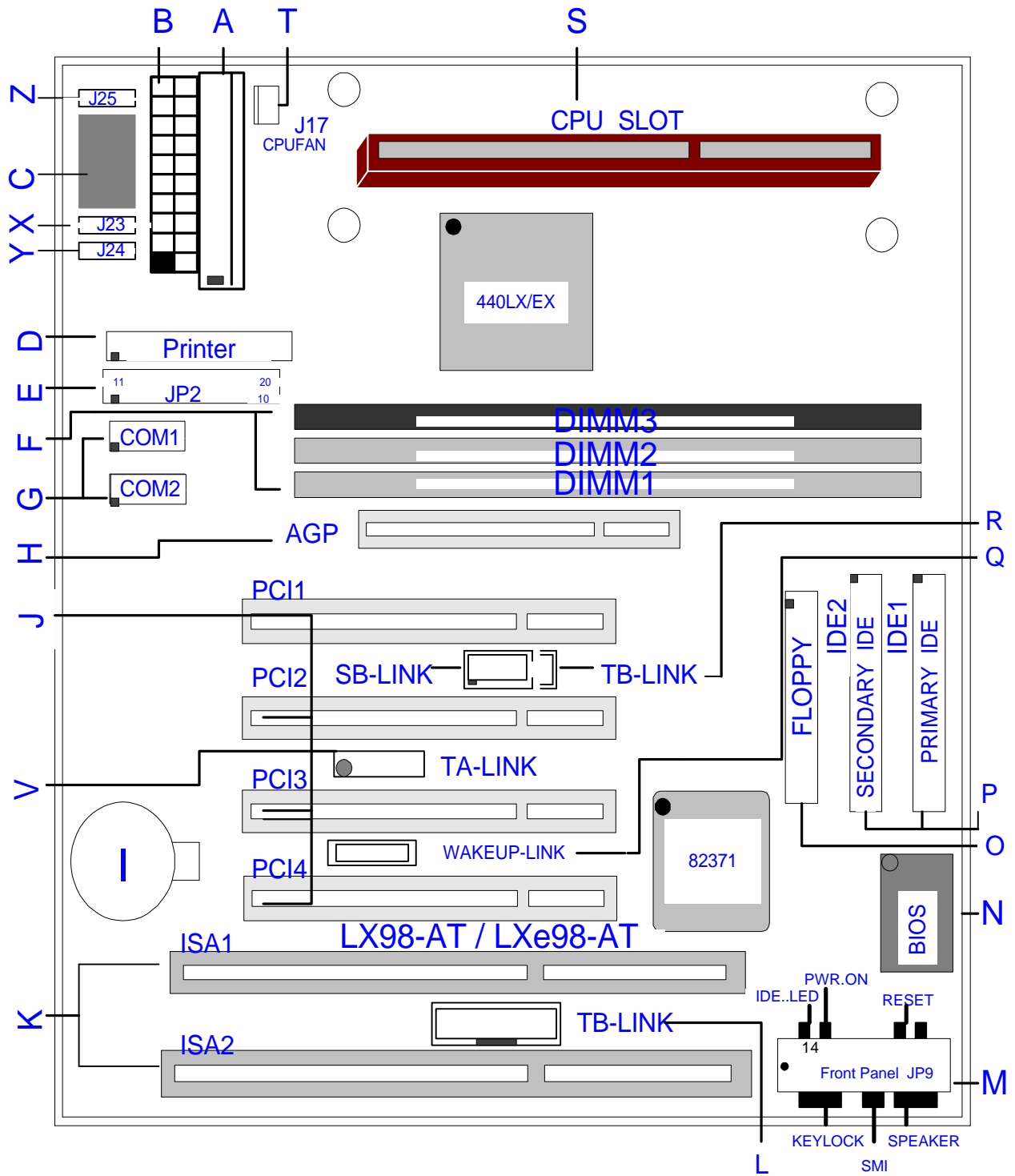


EX98

- with two DIMM only
- with three PCI only

A	AT Power Supply Connector	K.	ISA Add-in Board Connectors
B	ATX Power Supply Connector	L.	TB-LINK Creative ISA Header
C	AT Keyboard Connector	M.	Front Panel Function Connectors
D	Parallel (Printer) Port Header	N.	Flash BIOS
E	Integrated Functions Connector	O.	Floppy Drive Connector
F	3.3v DIMM Sockets	P.	IDE device connector
G	Serial (COM1 and 2) Port Headers	Q.	WAKEUP-LINK Header
H	Accelerated Graphic Port (AGP)	R.	SB-LINK and TB-LINK Creative PCI Header
I	3V Lithium Battery	S.	SLOT 1 for PENTIUM II CPU Card
J	PCI Add-in Board Connectors	T.	CPU FAN Connector

Mainboard Installation



LX98-AT / LXe98-AT

A. Power Supply Connector	K. ISA Add-in Board Connectors
B. ATX Power Supply Connector	L. TB-LINK Creative ISA Header
C. AT Keyboard Connector	M. Front Panel Function Connectors
D. Parallel (Printer) Port Header	N. Flash BIOS
E. Integrated Functions Connector	O. Floppy Drive Connector
F. 3.3v DIMM Sockets	P. IDE device connector
G. Serial (COM1 and 2) Port Headers	Q. WAKEUP-LINK Header
H. Accelerated Graphic Port (AGP)	R. SB-LINK and TB-LINK Creative PCI Header
I. 3V Lithium Battery	S. SLOT 1 for PENTIUM II CPU Card
J. PCI Add-in Board Connectors	T. CPU FAN Connector
V. TA-LINK Intel LAN Header	
X. J23 is CD Audio Input (1,3:Ground,2:Right,4:Left)	
Y. J24 is CD Audio input (1:Right,2,3:Ground,4:Left)	
Z. J25 is Auxiliary input (1:Left,2,3:Ground,4:Right)	

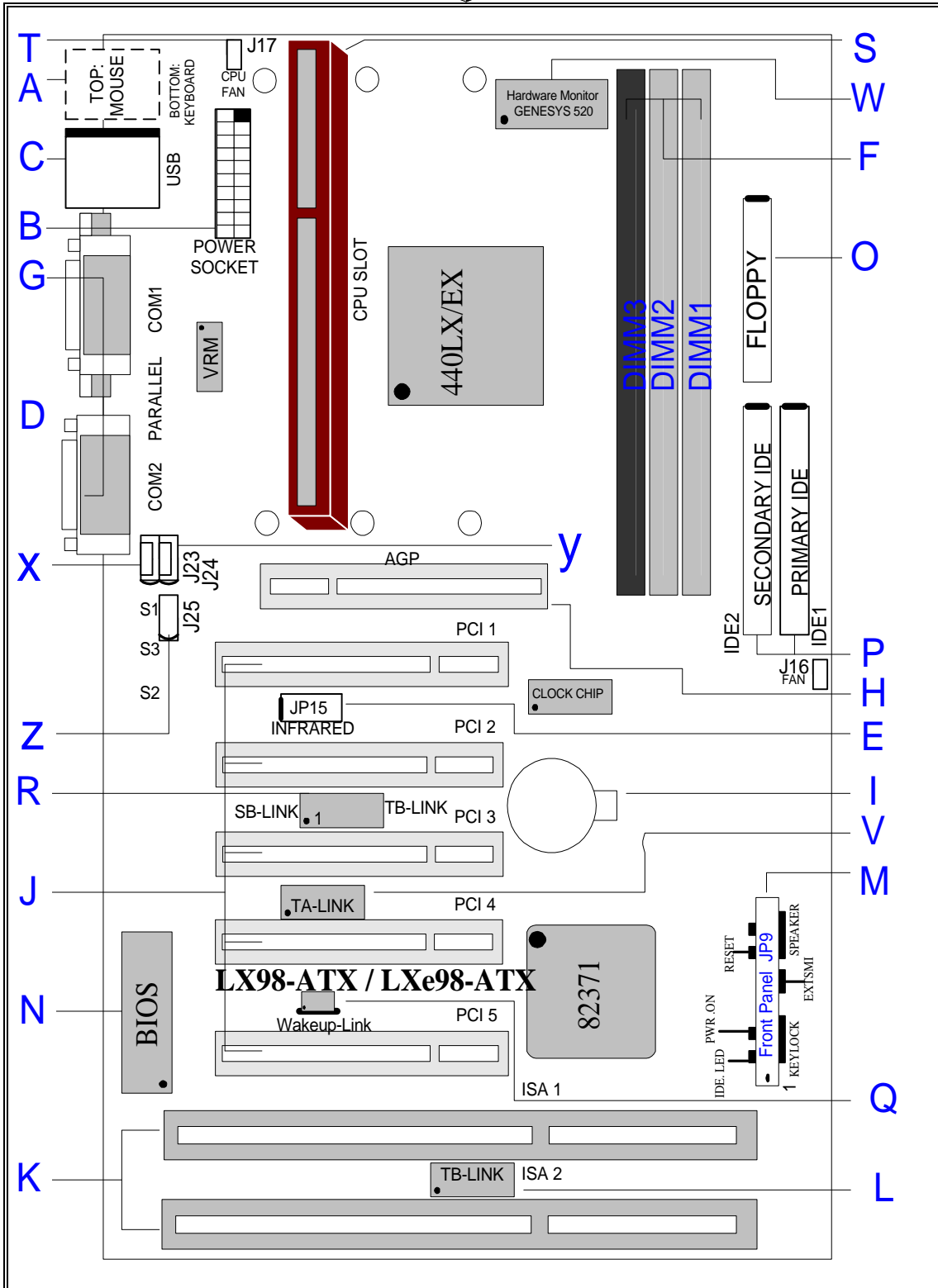
LX98-AT

- supports three DIMM slots

LXe98-AT

- supports two DIMM slots with one optional DIMM 3
- SMARTDIMM Bios technology for DIMM 3 Support

Mainboard Installation



LX98-ATX / LXe98-ATX

– System Health Monitor Onboard

A. PS/2 Keyboard / Mouse Connectors	K. ISA Add-in Board Connectors
B. ATX Power Supply Connector	L. TB-LINK Creative ISA Header
C. Universal Serial Bus (USB) Connectors	M. Front Panel Function Connectors
E. Infra-Red (IR) Connector	N. Flash BIOS
F. 3.3v DIMM Sockets	O. Floppy Drive Connector
G. Serial COM1 , Serial COM2 and Parallel Port Connectors	P. IDE device connector
H. Accelerated Graphic Port (AGP)	Q. WAKEUP-LINK Header
I. 3V Lithium Battery	R. SB-LINK and TB-LINK Creative PCI Header
J. PCI Add-in Board Connectors	S. SLOT 1 for PENTIUM II CPU Card
V. TA-LINK Intel LAN Header	T. CPU FAN Connector
W. GL520SM Hardware Monitor	
X. J23 is CD Audio Input (1,3:Ground,2:Right,4:Left)	
Y. J24 is CD Audio input (1:Right,2,3:Ground,4:Left)	
Z. J25 is Auxiliary input (1:Left,2,3:Ground,4:Right)	

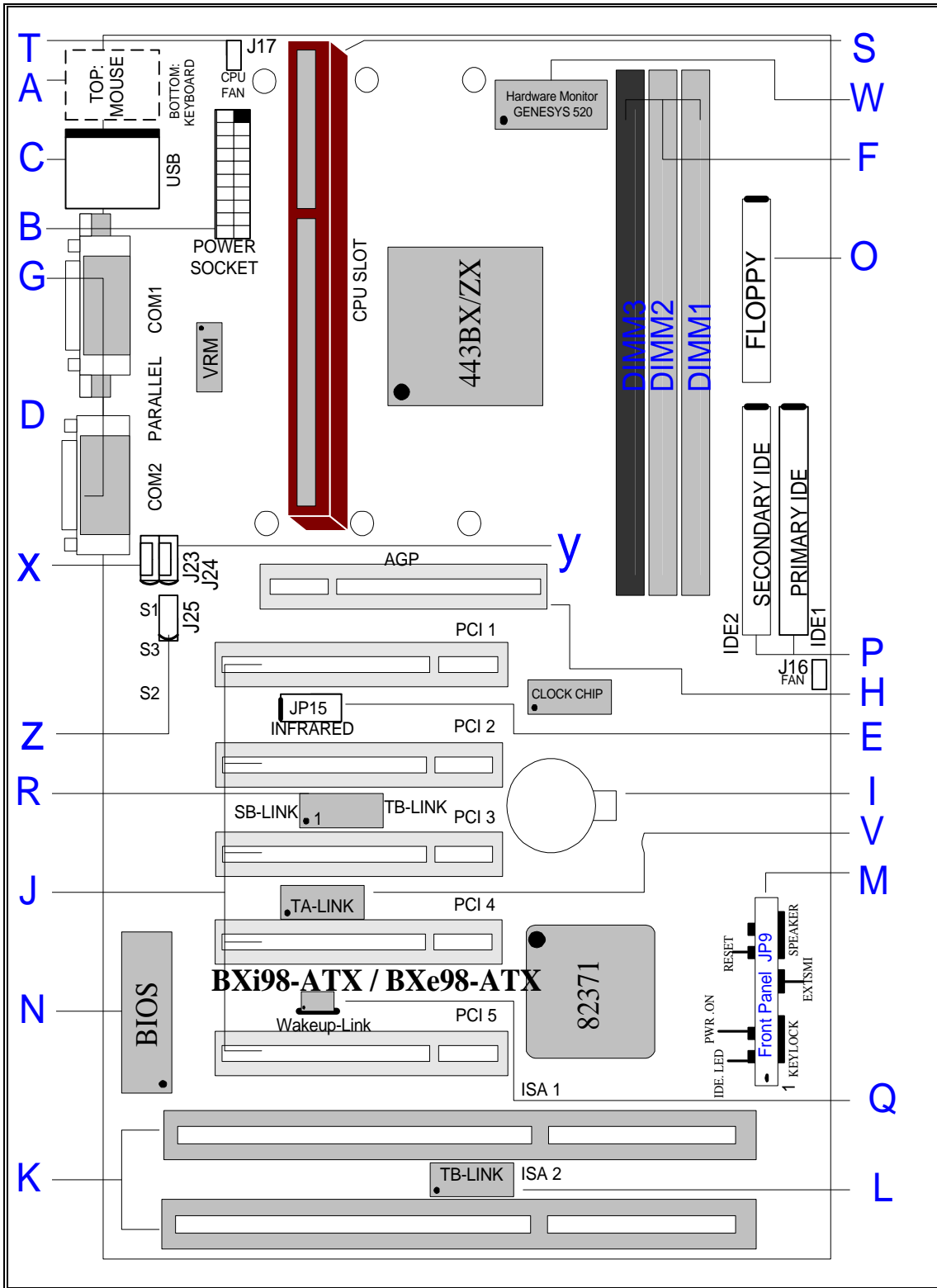
LX98-ATX

- supports three DIMM slots

LXe98-ATX

- supports two DIMM slots with one optional DIMM 3
- SMARTDIMM Bios technology for DIMM 3 Support

Mainboard Installation



BXi98-ATX / BXe98-ATX

– System Health Monitor Onboard

A. PS/2 Keyboard / Mouse Connectors	K. ISA Add-in Board Connectors
B. ATX Power Supply Connector	L. TB-LINK Creative ISA Header
C. Universal Serial Bus (USB) Connectors	M. Front Panel Function Connectors
E. Infra-Red (IR) Connector	N. Flash BIOS
F. 3.3v DIMM Sockets	O. Floppy Drive Connector
G. Serial COM1 , Serial COM2 and Parallel Port Connectors	P. IDE device connector
H. Accelerated Graphic Port (AGP)	Q. WAKEUP-LINK Header
I. 3V Lithium Battery	R. SB-LINK and TB-LINK Creative PCI Header
J. PCI Add-in Board Connectors	S. SLOT 1 for PENTIUM II CPU Card
V. TA-LINK Intel LAN Header	T. CPU FAN Connector
AA. GL520SM Hardware Monitor BB. J23 is CD Audio Input (1,3:Ground,2:Right,4:Left) CC. J24 is CD Audio input (1:Right,2,3:Ground,4:Left) DD. J25 is Auxiliary input (1:Left,2,3:Ground,4:Right)	

BXi98-ATX

- supports three DIMM slots

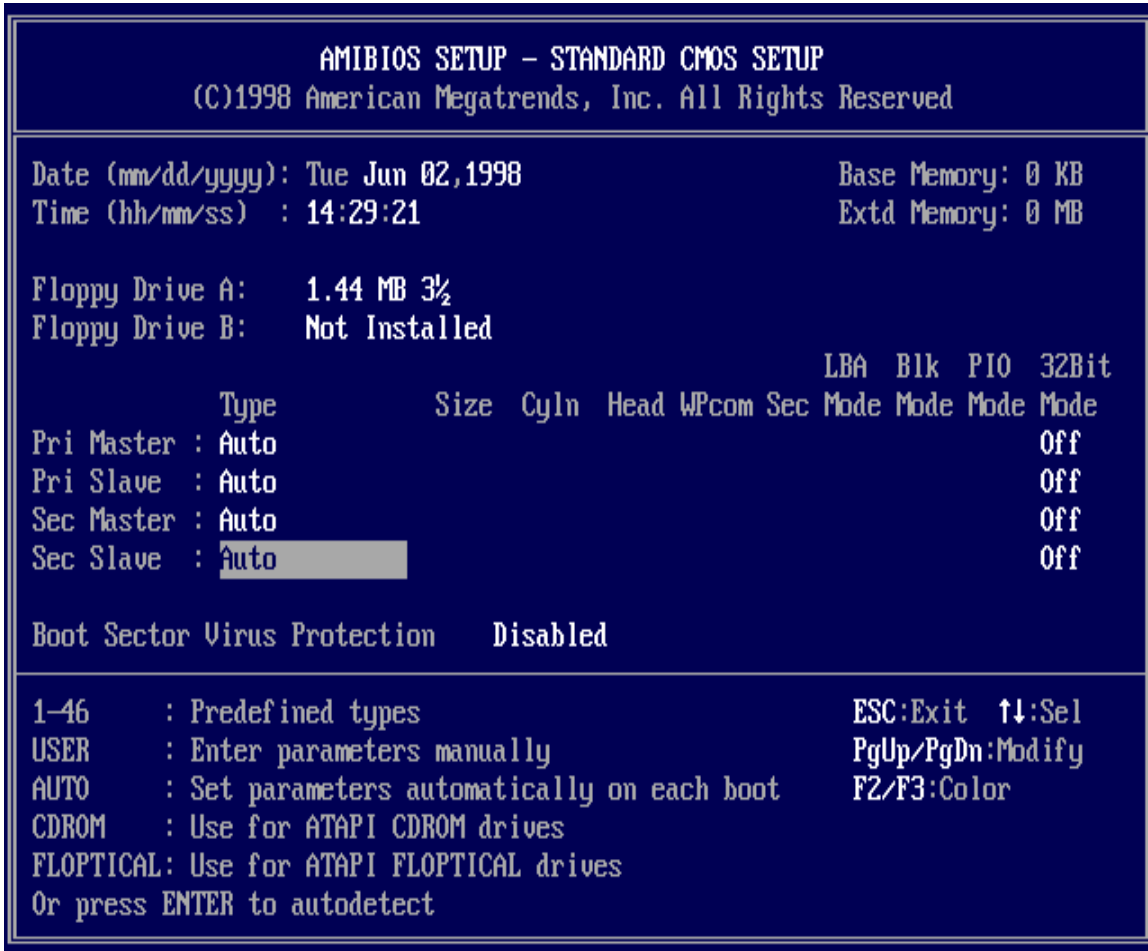
BXe98-ATX

- supports two DIMM slots with one optional DIMM 3
- SMARTDIMM Bios technology for DIMM 3 Support



AMIBIOS Setup

Types of Setup	Description
Standard CMOS Setup	Sets time, date, hard disk type, types of floppy drives, monitor type, and if keyboard is installed.
Advanced CMOS Setup	Sets Typematic Rate and Delay, Above 1 MB Memory Test, Memory Test Tick Sound, Hit Message Display, System Boot Up Sequence, and many others.
Advanced Chipset Setup	Sets chipset-specific options and features.
Power Management Setup	Controls power conservation options.
PCI/PnP Setup	Sets options related to PCI bus and Plug and Play options.
Peripheral Setup	Controls I/O Controller-related options.
CPU Configuration Setup	This option selects the type of CPU install in the motherboard. The settings are <i>Auto</i> (AMIBIOS automatically determines the CPU type).



Standard CMOS Setup

Select the AMIBIOS Setup options by choosing Standard Setup from the AMIBIOS Setup main menu. Standard Setup options are described below.

Floppy Drive A: and B:

Move the cursor to these fields via ↑ and ↓ and select the floppy type. The settings are 360 KB 5¼ inch, 1.2 MB 5¼ inch, 720 KB 3 ½ inch, 1.44 MB 3 ½ inch or 2.88 MB 3 ½ inch.

- Primary Master**
- Primary Slave**
- Secondary Master**
- Secondary Slave**

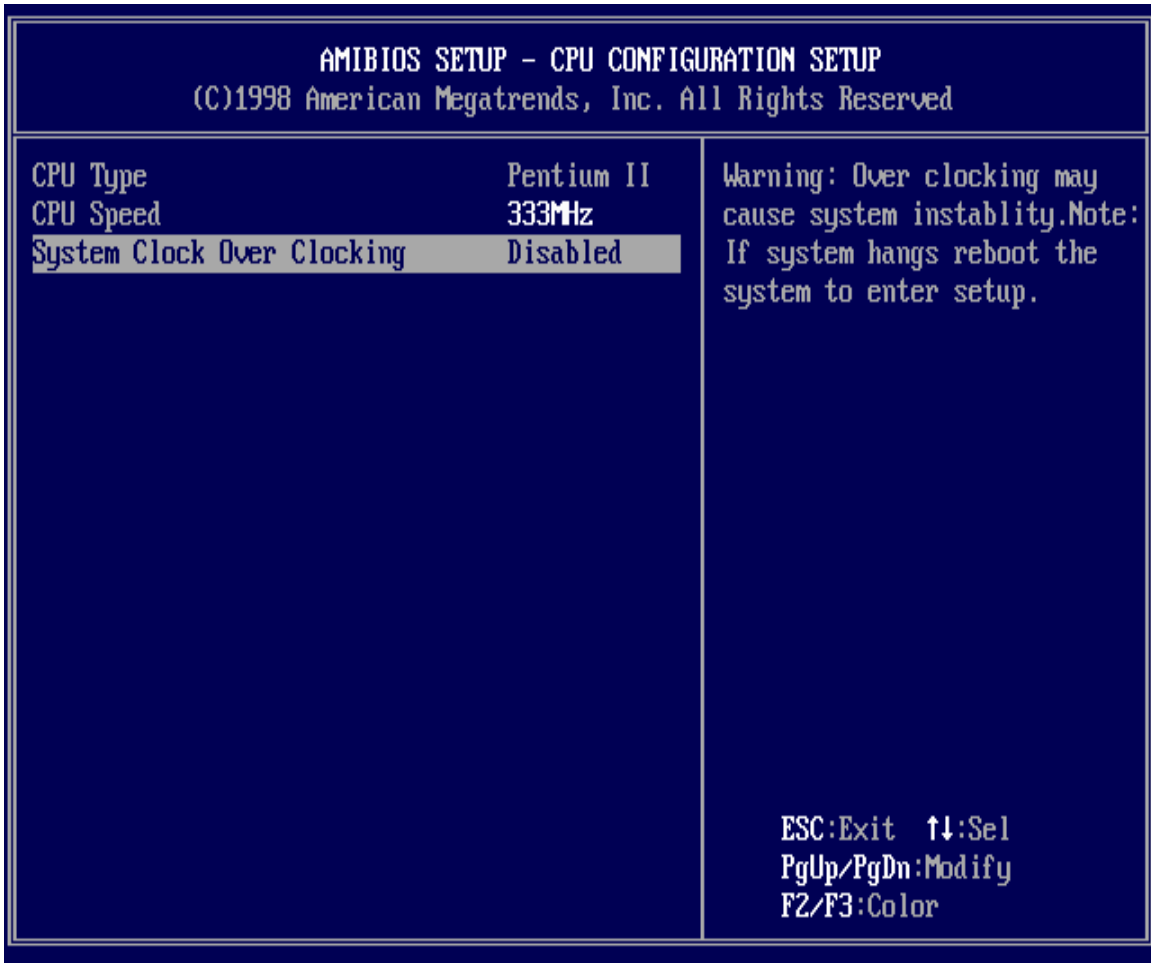
Select these options to configure the drive named in the option. Select *Auto Detect IDE* to let AMIBIOS automatically configure the drive. A screen with a list of drive parameters appears. Click on *OK* to configure the drive.

Type	How to Configure
SCSI	Select <i>Type</i> . Select <i>Not Installed</i> on the drive parameter screen. The SCSI drivers provided by the SCSI manufacturer should allow you to configure the SCSI drive.
IDE	Select <i>Type</i> . Select <i>Auto</i> to let AMIBIOS determine the parameters. Click on OK when AMIBIOS displays the drive parameters. Select <i>LBA Mode</i> . Select <i>On</i> if the drive has a capacity greater than 540 MB. Select <i>Block Mode</i> . Select <i>On</i> to allow block mode data transfers. Select <i>32-Bit Mode</i> . Select <i>On</i> to allow 32-bit data transfers. Select the <i>PIO Mode</i> . It is best to select <i>Auto</i> to allow AMIBIOS to determine the PIO mode. If you select a PIO mode that is not supported by the IDE drive, the drive will not work properly. If you are absolutely certain that you know the drive's PIO mode, select PIO mode 0 - 4, as appropriate.
CD-ROM	Select <i>Type</i> . Select <i>CDROM</i> . Click on <i>OK</i> when AMIBIOS displays the drive parameters.
Standard MFM	Select <i>Type</i> . You must know the drive parameters. Select the drive type that exactly matches your drive's parameters.
Non-Standard MFM	Select <i>Type</i> . If the drive parameters do not match the drive parameters listed for drive types 1 - 46, select <i>User</i> and enter the correct hard disk drive parameters.

Entering Drive Parameters

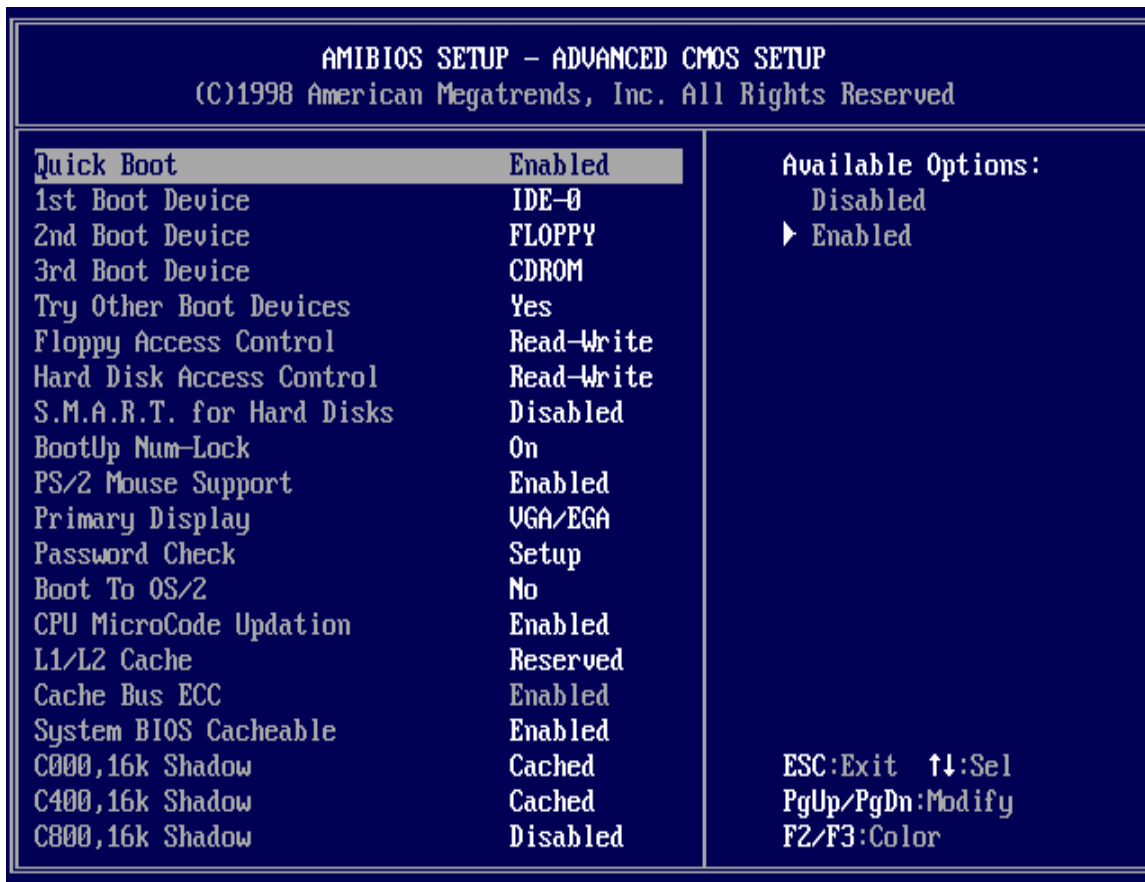
You can also enter the hard disk drive parameters. The drive parameters are:

Parameter	Description
Type	The number for a drive with certain identification parameters.
Cylinders	The number of cylinders in the disk drive.
Heads	The number of heads.
Write Precompensation	The actual physical size of a sector gets progressively smaller as the track diameter diminishes. Yet each sector must still hold 512 bytes. Write precompensation circuitry on the hard disk compensates for the physical difference in sector size by boosting the write current for sectors on inner tracks. This parameter is the track number on the disk surface where write precompensation begins.
Landing Zone	This number is the cylinder location where the heads normally park when the system is shut down.
Sectors	The number of sectors per track. MFM drives have 17 sectors per track. RLL drives have 26 sectors per track. ESDI drives have 34 sectors per track. SCSI and IDE drives have even more sectors per track.
Capacity	The formatted capacity of the drive is the number of heads times the number of cylinders times the number of sectors per track times 512 (bytes per sector).



CPU CONFIGURATION SETUP

The system BIOS is capable to detect the CPU type, say, Pentium II or Celeron. The user is only required to select the CPU speed. In addition, *overclocking* option is provided for advanced users who prefer to run the CPU over the specified clock frequency of 66MHz.



ADVANCED CMOS SETUP

- Quick Boot** Set this option to *Enabled* to instruct AMIBIOS to boot quickly when the computer is powered on. This option replaces the old **Above 1 MB Memory Test** Advanced Setup option. The settings are:
- 1st Boot Device** This option sets the type of device for the first boot drives that the AMIBIOS attempts to boot from after AMIBIOS POST completes.
- 2nd Boot Device** This option sets the type of device for the second boot drives that the AMIBIOS attempts to boot from after AMIBIOS POST completes.

- 3rd Boot Device** This option sets the type of device for the third boot drives that the AMIBIOS attempts to boot from after AMIBIOS POST completes.
- Try Other Boot Devices** Set this option to *Yes* to instruct AMIBIOS to attempt to boot from any other drive in the system if it cannot find a boot drive among the drives specified in the **1st Boot Device**, **2nd Boot Device**, **3rd Boot Device** options.
- Floppy Access Control** This option specifies the read/write access that is set when booting from a floppy drive.
-

- Hard Disk Access Control** This option specifies the read/write access that is set when booting from a hard disk drive.
-

- S.M.A.R.T. For Hard Disks** Set this option to *Enabled* to permit AMIBIOS to use the SMART (System Management System Management and Reporting Technologies) protocol for reporting server system information over a network.

- Boot Up Num Lock** Set this option to *Off* to turn the Num Lock key off when the computer is booted so you can use the arrow keys on both the numeric keypad and the keyboard.

- PS/2 Mouse Support** Set this option to *Enabled* to enable AMIBIOS support for a PS/2-type mouse. Pins 2-3 of the PS/2 Mouse Selector jumper on the motherboard must be shorted together to enable PS/2 mouse support.

- Primary Display** This option configures the type of monitor attached to the computer. The settings are *Mono*, *CGA40x25*, *CGA80x25*, *VGA/EGA*, or *Absent*
-

- Password Check** This option enables password checking every time the system boots or when you run AMIBIOS Setup. If *Always* is chosen, a user password prompt appears every time the computer is turned on. If *Setup* is chosen, the password prompt appears if AMIBIOS is executed. See Advanced Setup chapter for instructions on changing a password. The Optimal and Fail-Safe defaults are *Setup*.
-

Boot To OS/2 Set this option to *Enabled* if running OS/2 operating system and using more than 64 MB of system memory on the motherboard.

CPU Microcode Update Set this option to *Enabled* to permit the CPU to be updated online at any time.

System BIOS Cacheable When set to *Enabled*, the contents of the F0000h system memory segment can be read from or written to cache memory. The contents of this memory segment are always copied from the BIOS ROM to system RAM for faster execution.

C000,16K Shadow
C400,16K Shadow These options specify how the 32 KB of video ROM at C0000h is treated. The settings are:

Setting	Description
<i>Disabled</i>	The contents of the video ROM are not copied to RAM.
<i>Enabled</i>	The contents of the video ROM area from C0000h - C7FFFh are copied (shadowed) from ROM to RAM for faster execution.
<i>Cached</i>	The contents of the video ROM area from C0000h - C7FFFh are copied from ROM to RAM and can be written to or read from cache memory.

C800,16K Shadow
CC00,16K Shadow
D000,16K Shadow
D400,16K Shadow
D800, 16K Shadow
DC00,16K Shadow These options enable shadowing of the contents of the ROM area named in the option. The ROM area not used by ISA adapter cards is allocated to PCI adapter cards. The settings are:

Setting	Description
<i>Disabled</i>	The contents of the video ROM are not copied to RAM.
<i>Cached</i>	The contents of the video ROM area from C0000h - C7FFFh are copied from ROM to RAM and can be written to or read from cache memory.
<i>Enabled</i>	The contents of the video ROM area from C0000h - C7FFFh are copied (shadowed) from ROM to RAM for faster execution.

AMIBIOS SETUP – ADVANCED CHIPSET SETUP		
(C)1998 American Megatrends, Inc. All Rights Reserved		
EDO DRAM Speed (ns)	Auto	Available Options: ▶ Auto Manual 50 60 70 ESC:Exit ↑↓:Sel PgUp/PgDn:Modify F2/F3:Color
EDO Read Burst Timing	x333	
EDO Write Burst Timing	x333	
EDO RAS Precharge	4 Clks	
EDO RAS to CAS	3 Clks	
MA WaitState	Slow	
SDRAM Timing Latency	Auto	
RAStoCAS	3 Clks	
RAS Precharge	3 Clks	
DRAM Integrity Mode	Non ECC	
PIIX4 PASSIVE	Enabled	
PIIX4 DELAYED TRANSACTION	Disabled	
Fixed Memory Hole	Disabled	
UGA Frame Buffer USWC	Disabled	
PCI Frame Buffer USWC	Disabled	
USWC write I/O Post	Auto	
AGP Aperture Size	64MB	
AGP System Error Forwarding	Enabled	
AGP Parity Error Response	Enabled	
AGP Common SERR#	Enabled	

ADVANCED Chipset Setup

Choose Chipset Setup on the AMIBIOS Setup main menu. All Chipset Setup options are then displayed. AMIBIOS Setup can be customized. AMIBIOS Setup can be customized via AMIBCP. See the *AMIBIOS Utilities Guide* for additional information.

MA Wait State	This option specifies the length of the delay inserted between MA signals. The settings are <i>Slow</i> or <i>Fast</i> .
SDRAM Timing Latency	This option specifies the latency for the Synchronous DRAM system memory signals. The settings are <i>Auto</i> (AMIBIOS automatically determines the optimal delay) or <i>Manual</i> .
RAS To CAS	This option specifies the length of the delay inserted between the RAS and CAS signals of the DRAM system memory access cycle. The settings are <i>2 CLKs</i> or <i>3 CLKs</i> .

CAS Lat.. This option sets the latency period for the CAS signal. The settings are *2 CLKs* or *3 CLKs*.

RAS Precharge This option specifies the length of the RAS precharge part of the DRAM system memory access cycle when EDO DRAM system memory is installed in this computer. The settings are *3 CLKs* or *4 CLKs*.

VGA Frame Buffer USWC Set this option to *Enabled* to enable the VGA video frame buffer using USWC (Uncacheable, Speculatable, Write-Combined) memory. The settings are *Enabled* or *Disabled*. Older ISA VGA card drivers may not behave correctly if this option is not set to *Disabled*.

PCI Frame Buffer USWC Set this option to *Enabled* to enable the USWC memory attribute and improve video performance when a PCI video adapter is installed. However, VGA card drivers may not behave correctly when this option is set to *Enabled*.

DRAM Integrity Mode This option sets the type of system memory checking. The settings are:

Setting	Description
<i>Non ECC</i>	No error checking or error reporting is done.
<i>ECC Only</i>	Multibit errors are detected and reported as parity errors. Single-bit errors are corrected by the chipset. Corrected bits of data from memory are not written back to DRAM system memory. If <i>Level 1</i> is selected, the J25 External SMI software jumper on the Series 745 board is disabled.
<i>ECC</i>	Multibit errors are detected and reported as parity errors. Single-bit errors are corrected by the chipset and are written back to DRAM system memory. If a soft (correctable) memory error occurs, writing the fixed data back to DRAM system memory will resolve the problem. Most DRAM errors are soft errors. If a hard (uncorrectable) error occurs, writing the fixed data back to DRAM system memory does not solve the problem. In this case, the second time the error occurs in the same location, a Parity Error is reported, indicating an uncorrectable error. If <i>ECCI</i> is selected, AMIBIOS automatically enables the System Management Interface (SMI) is enabled. If you do not want to enable power management, set the Power Management/APM option to <i>Disabled</i> and set all Power Management Setup timeout options to <i>Disabled</i> . To enable power management, set Power Management /APM to <i>Enabled</i> and set the power management timeout options as desired.

Fixed Memory Hole This option specifies the location of an area of memory that cannot be addressed on the ISA bus. The settings are *Disabled*, *15 MB-16 MB*, or *512KB-640KB*.

TypeF DMA BufferControl1
TypeF DMA Buffer Control2

These options specify the DMA channel where TypeF buffer control is implemented. The settings are *Disabled*, *Channel-0*, *Channel-1*, *Channel-2*, *Channel-3*, *Channel-5*, *Channel-6*, or *Channel-7*.

DMA-0 Type
DMA-1 Type
DMA-2 Type
DMA-3 Type
DMA-5 Type

DMA-6 Type

DMA-7 Type

These options specify the bus that the specified DMA channel can be used on. The settings are *PC/PCI*, *Distributed*, or *Normal ISA*.

AGP Aperture Size

This option specifies the amount of system memory that can be used by the Accelerated Graphics Port (AGP). The settings are *4 MB*, *8 MB*, *16 MB*, *32 MB*, *64 MB*, *128 MB*, or *256 MB*.

System Type

This option sets the system type. The settings are *Auto* (AMIBIOS automatically determines the system type), *DP*, or *UP*.

USWC Write I/O Post This option sets the status of USWC posted writes to I/O. The settings are:

Settings	Description
<i>Enabled</i>	USWC posted writes to I/O are enabled.
<i>Disabled</i>	USWC posted writes to I/O are disabled.
<i>Auto</i>	AMIBIOS automatically determines if USWC posted writes to I/O should be enabled and sets this option accordingly.

AGP Common SERR#

Set this option to *Enabled* to permit a common SERR# signal for AGP and the standard PC bus. The settings are *Enabled* or *Disabled*.

AGP System Error Forwarding

Set this option to *Enabled* to enable AGP system errors to be forwarded. The settings are *Enabled* or *Disabled*.


AGP Parity Error Response

Set this option to *Enabled* to enable AGP parity error response. The settings are *Enabled* or *Disabled*.

IRQ12

This option specifies how IRQ12 is used. The settings are:

Setting	Description
<i>Auto</i>	AMIBIOS automatically determines how IRQ12 should be allocated.



Setting	Description
Standard	IRQ12 is made available for use on the ISA bus.
Mouse	IRQ12 is used by the PS/2 mouse.

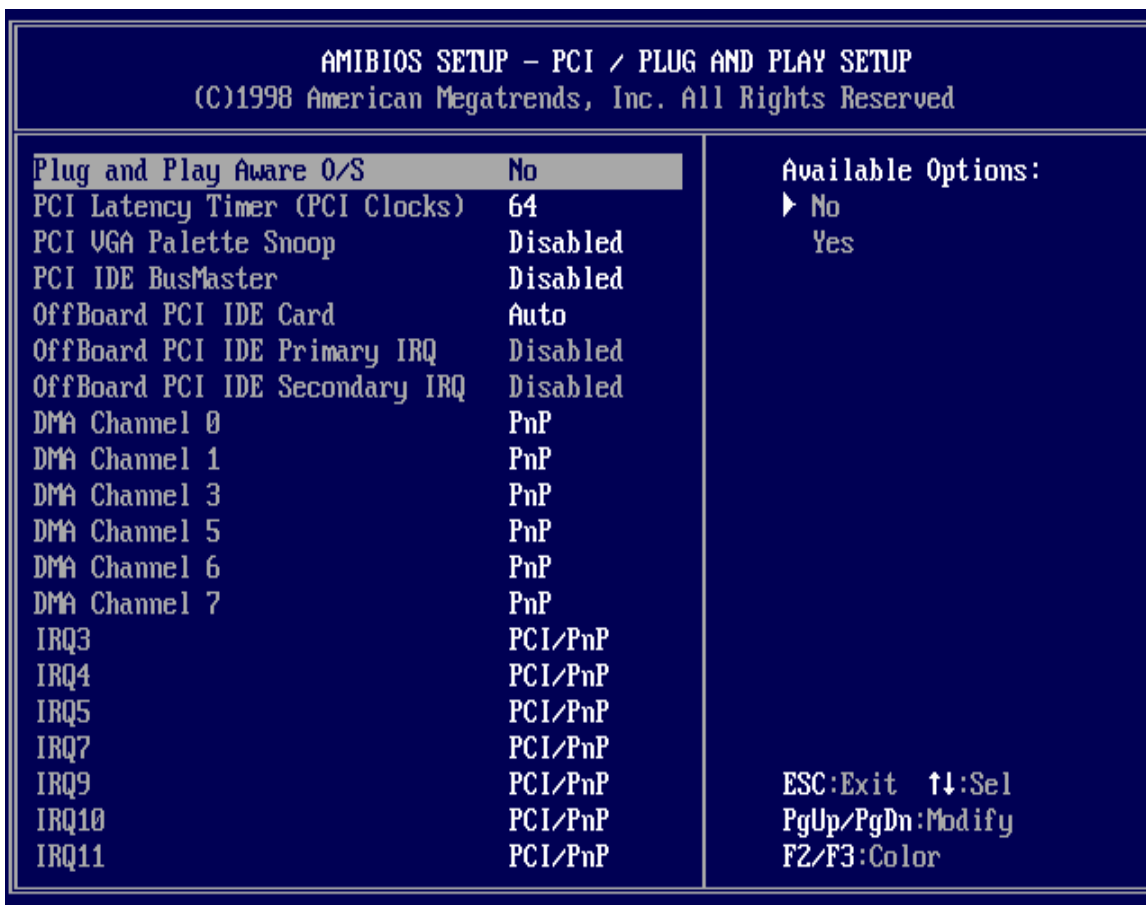
PIIX4 SERR# Set this option to *Enabled* to enable the SERR# signal for the Intel PIIX4 chip. The settings are *Enabled* or *Disabled*.

USB Passive Release Enable Set this option to *Enabled* to enable passive release for USB. The settings are *Enabled* or *Disabled*.

PIIX4 Passive Set this option to *Enabled* to enable passive release for the Intel PIIX4 chip. The settings are *Enabled* or *Disabled*.

PIIX4 Delayed Transaction Set this option to *Enabled* to enable delayed transactions for the Intel PIIX4 chip. The settings are *Enabled* or *Disabled*.

Master Lat. Timer This option specifies the latency for the Timer. The settings are 00h through F8h in increments of 08h. The settings are 00h.



PCI/PnP Setup

Choose PCI/Plug and Play Setup from the AMIBIOS Setup screen to display the PCI and Plug and Play Setup options, described below.

Plug and Play Aware O/S

Set this option to *Yes* to inform AMIBIOS that the operating system can handle plug and Play (PnP) devices. The settings are *No* or *Yes*.

PCI Latency Timer (PCI Clocks)

This option specifies the latency timings (in PCI clocks) for PCI devices installed in the PCI expansion slots. The settings are *32, 64, 96, 128, 160, 192, 224, or 248*.

PCI VGA Palette Snoop When this option is set to *Enabled*, multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled). For example: if there are two VGA devices in the computer (one PCI and one ISA) and:

VGA Palette Snoop Bit	Action
<i>Disabled</i>	Data read and written by the CPU is only directed to the PCI VGA device's palette registers.
<i>Enabled</i>	Data read and written by the CPU is directed to the both the PCI VGA device's palette registers and the ISA VGA device palette registers, permitting the palette registers of both devices to be identical.

This option must be set to *Enabled* if any ISA adapter card installed in the system requires VGA palette snooping.

Allocate IRQ To PCI VGA Set this option to *Yes* to allocate an IRQ to the VGA device on the PCI bus. The settings are *Yes* or *No*.

PCI IDE Bus Master Set this option to *Enabled* to specify that the IDE controller on the PCI bus has bus mastering capability. The settings are *Disabled* or *Enabled*.

Offboard PCI IDE Card This option specifies if an offboard PCI IDE controller adapter card is used in the computer. You must also specify the PCI expansion slot on the motherboard where the offboard PCI IDE controller card is installed. If an offboard PCI IDE controller is used, the motherboard onboard IDE controller is automatically disabled. The settings are *Disabled*, *Auto*, *Slot1*, *Slot2*, *Slot3*, *Slot4*, *Slot5*, or *Slot6*. If *Auto* is selected, AMIBIOS automatically determines the correct setting. This option forces IRQ 14 and 15 to a PCI slot on the PCI local bus. This is necessary to support non-compliant PCI IDE adapter cards.

Offboard PCI IDE Primary IRQ This option specifies the PCI interrupt used by the primary IDE channel on the offboard PCI IDE controller. The settings are *Disabled*, *Hardwired*, *INTA*, *INTB*, *INTC*, or *INTD*.

Offboard PCI IDE Secondary IRQ This option specifies the PCI interrupt used by the secondary IDE channel on the offboard PCI IDE controller. The settings are *Disabled*, *Hardwired*, *INTA*, *INTB*, *INTC*, or *INTD*. The Optimal and Fail-Safe settings are *Disabled*.

PCI Slot1 IRQ Priority
PCI Slot2 IRQ Priority

PCI Slot3 IRQ Priority

PCI Slot4 IRQ Priority

These options specify the IRQ priority for PCI devices installed in the PCI expansion slots. The settings are *Auto*, (*IRQ*) 3, 4, 5, 7, 9, 10, and 11, in priority order.

DMA Channel 0

DMA Channel 1

DMA Channel 3

DMA Channel 5

DMA Channel 6

DMA Channel 7

These options allow you to specify the bus type used by each DMA channel. The settings are *PnP* or *ISA/EISA*.

IRQ3

IRQ4

IRQ5

IRQ7

IRQ9

IRQ10

IRQ11

IRQ12

IRQ14

IRQ15

These options specify the bus that the specified IRQ line is used on. These options allow you to reserve IRQs for legacy ISA adapter cards. These options determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the pool, the end user can use these options to reserve the IRQ by assigning an *ISA/EISA* setting to it. Onboard I/O is configured by AMIBIOS. All IRQs used by onboard I/O are configured as *PCI/PnP*.

IRQ12 only appears if the **Mouse Support** option in Advanced Setup is set to *Disabled*. IRQ14 and 15 will not be available if the onboard PCI IDE is enabled. If all IRQs are set to *ISA/EISA* and IRQ14 and 15 are allocated to the onboard PCI IDE, IRQ9 will still be available for PCI and PnP devices, because at least one IRQ must be available for PCI and PnP devices. The settings are *ISA/EISA* or *PCI/PnP*.

Reserved Memory Size This option specifies the size of the memory area reserved for legacy ISA adapter cards. The settings are *Disabled*, *16K*, *32K*, or *64K*.

Reserved Memory Address This option specifies the beginning address (in hex) of the reserved memory area. The specified ROM memory area is reserved for use by legacy ISA adapter cards.

This option does not appear if the **Reserved Memory Size** option is set to *Disabled*.

The settings are *C0000*, *C4000*, *C8000*, *CC000*, *D0000*, *D4000*, *D8000*, or *DC000*.



POWER MANAGEMENT SETUP

The AMIBIOS Setup options described in this section are selected by choosing Power Management Setup from the AMIBIOS Setup main menu.

Power Management/APM Set this option to *Enabled* to enable the chipset power management and APM (Advanced Power Management) features. The settings are *Enabled* or *Disabled*.

Power Button Function This option specifies how the power button mounted externally on the computer chassis is used. The settings are:

Setting	Description
On/Off	Pushing the power button turns the computer on or off.
Suspend	Pushing the Power button places the computer in Suspend mode or Full On power mode.

Instant On Support Set this option to *Enabled* to enable AMIBIOS support for the Intel InstantON specification. The settings are *Enabled* or *Disabled*.

Green PC Monitor Power State This option specifies the power state that the green PC-compliant video monitor enters when AMIBIOS places it in a power saving state after

the specified period of display inactivity has expired. The settings are *Off*, *Standby*, *Suspend*, or *Disabled*.

Video Power Down Mode This option specifies the power state that the video subsystem enters when AMIBIOS places it in a power saving state after the specified period of display inactivity has expired. The settings are *Standby*, *Suspend* or *Disabled*.

Hard Disk Power Down Mode This option specifies the power conserving state that the hard disk drive enters after the specified period of hard drive inactivity has expired. The settings are *Disabled*, *Standby*, or *Suspend*.

Hard Disk Timeout This option specifies the length of a period of hard disk drive inactivity. When this length of time expires, the computer enters power-conserving state specified in the **Hard Disk Power Down Mode** option (see the previous page). The settings are *Disabled*, *1 min. (minute)*, *2 min.*, *3 min.*, *4 min.*, *5 min.*, *6 min.*, *7 min.*, *8 min.*, *9 min.*, *10 min.*, *11 min.*, *12 min.*, *13 min.*, *14 min.*, and *15 min.*

Standby/Suspend Timer Unit This option specifies the unit of time used for the Standby and Suspend timeout periods. The settings are *4 msec*, *4 sec*, *32 sec*, or *4 min*.

Standby Timeout This option specifies the length of a period of system inactivity while in Full power on state. When this length of time expires, the computer enters Standby power state. The settings are *Disabled*, *4 msec*, *8 msec*, *12 msec*, *16 msec*, *up to 508 msec*, *in increments of 4 msec*.

Suspend Timeout This option specifies the length of a period of system inactivity while in Standby state. When this length of time expires, the computer enters Suspend power state. The settings are *Disabled*, *4 msec*, *8 msec*, *12 msec*, *16 msec*, *up to 508 msec*, *in increments of 4 msec*.

Slow Clock Ratio This option specifies the speed at which the system clock runs in the Standby Mode power saving state. The settings are expressed as a percentage between the normal CPU clock speed and the CPU clock speed when the computer is in the power-conserving state. The settings are *0-12.5%*, *12.5-25%*, *25-37.5%*, *37.5-50%*, *50-62.5%*, *62.5-75%*, or *75-87.5%*.

Display Activity When set to *Monitor*, this option enables event monitoring on the video display. If set to *Monitor* and the computer is in a power saving state, AMIBIOS watches for display activity. The computer enters the Full On state if any activity occurs. AMIBIOS reloads the Standby and Suspend timeout timers if display activity occurs. The settings are *Monitor* or *Ignore*.

Device 6 (Serial Port 1)

Device 7 (Serial Port 2)

Device 8 (Parallel Port)

Device 5 (Floppy Disk)

Device 0 (Primary Master IDE)

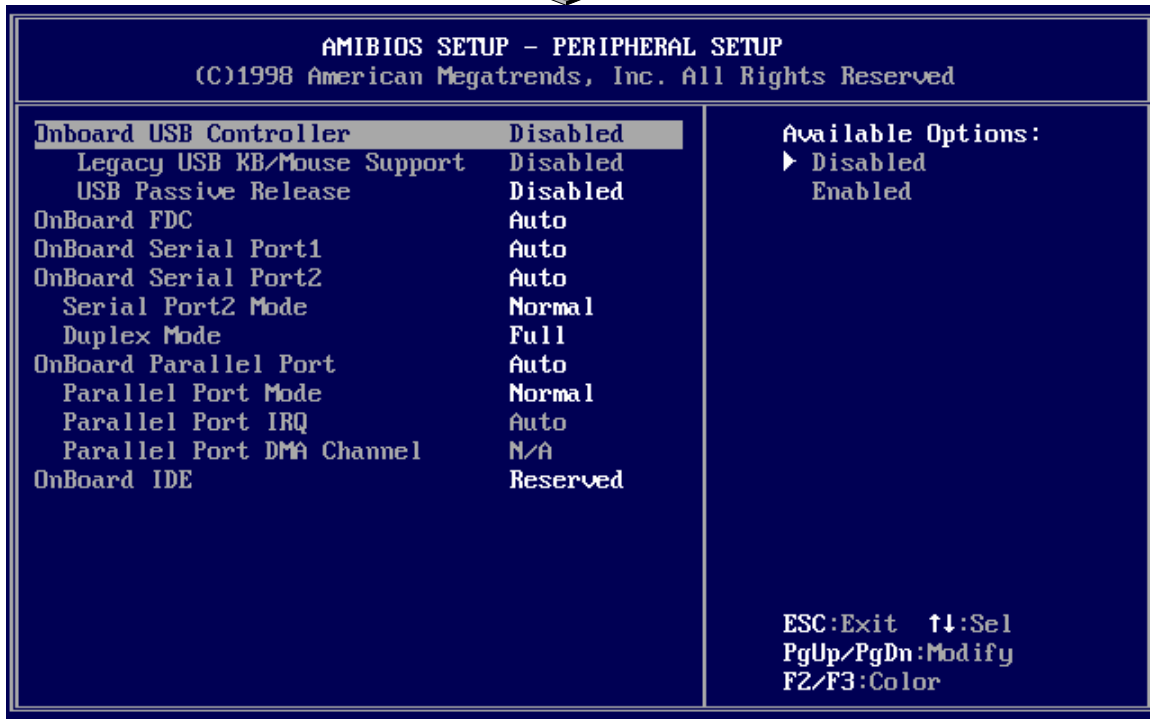
Device 1 (Primary Slave IDE)

Device 2 (Secondary Master IDE)

Device 3 (Secondary Slave IDE)

When set to *Monitor*, these options enable event monitoring on the specified hardware interrupt request line. If set to *Monitor* and the computer is in a power saving state, AMIBIOS watches for activity on the specified IRQ line. The computer enters the Full On state if any activity occurs. AMIBIOS reloads the Standby and Suspend timeout timers if activity occurs on the specified IRQ line.

The settings for each of these options are *Monitor* or *Ignore*.



PERIPHERAL SETUP

Peripheral Setup options are displayed by choosing Peripheral Setup from the AMIBIOS Setup main menu. All Peripheral Setup options are described here.

USB Function Set this option to *Enabled* to enable USB (Universal Serial Bus) support. The settings are *Enabled* or *Disabled*.

USB Keyboard/Mouse Legacy Support

Set this option to *Enabled* to enable support for older keyboards and mouse devices if the **USB Function** option is set to *Enabled*. The settings are *Enabled* or *Disabled*.

Onboard IDE This option specifies the IDE channel used by the onboard IDE controller. The settings are *Disabled*, *Primary*, or *Secondary*.

Onboard Floppy Controller Set this option to *Enabled* to enable the floppy drive controller on the motherboard. The settings are *Auto* (*AMIBIOS automatically determines if the floppy controller should be enabled*), *Enabled*, or *Disabled*.

Onboard Serial Port1 This option specifies the base I/O port address of serial port 1. The settings are *Auto* (*AMIBIOS* automatically determines the correct base I/O port address), *Disabled*, *3F8h*, *2F8h*, *2E8h*, or *3E8h*.

Onboard Serial Port2 This option specifies the base I/O port address of serial port 2. The settings are *Auto* (*AMIBIOS* automatically determines the correct base I/O port address), *Disabled*, *3F8h*, *2F8h*, *2E8h*, or *3E8h*.

Serial Port2 Mode This option specifies the operating mode for serial port 2. This option only appears if the **Onboard Serial Port2** option is not set to **Auto** or **Disabled**. The settings are *IR* (infrared) or *Normal*.

IR Mode This option specifies type of infrared devices supported by the system. This option only appears if the **Onboard Serial Port2** option is not set to **Auto** or **Disabled**. The settings are *Encoded* or *Non-Encoded*. There are no default settings.

IR Duplex Mode This option specifies the type of duplexing used for infrared on serial port 2. This option only appears if the **Onboard Serial Port2** option is not set to **Auto** or **Disabled**. The settings are *Half* or *Full*. There are no default settings.

IR Transmitter This option specifies the type of transmission used by the infrared devices attached to serial port 2. This option only appears if the **Onboard Serial Port2** option is not set to **Auto** or **Disabled**. The settings are *1.6 uS* or *3/16 Baud*. There are no default settings.

Onboard Parallel Port This option specifies the base I/O port address of the parallel port on the motherboard. The settings are *Disabled*, *378h*, *278h*, or *3BCh*. The Optimal default setting is *378h*.

Parallel Port Mode This option specifies the parallel port mode. The Optimal default setting is *Normal*. The Fail-Safe default setting is *Disabled*. The settings are:

Setting	Description
<i>Normal</i>	The normal parallel port mode is used.
<i>Bi-Dir</i>	Use this setting to support bidirectional transfers on the parallel port.
<i>EPP</i>	The parallel port can be used with devices that adhere to the Enhanced Parallel Port (EPP) specification. EPP uses the existing parallel port signals to provide asymmetric bidirectional data transfer driven by the host device.
<i>ECP</i>	The parallel port can be used with devices that adhere to the Extended Capabilities Port (ECP) specification. ECP uses the DMA protocol to achieve data transfer rates up to 2.5 Megabits per second. ECP provides symmetric bidirectional communication.

EPP Version This option specifies the Enhanced Parallel Port specification version number that is used in the system. This option only appears if the **Parallel Port Mode** option is set to *EPP*.

The settings are *1.7* or *1.9*. There are no Optimal and Fail-Safe default settings because the default setting for the **Parallel Port Mode** option is not *EPP*.

Parallel Port DMA Channel This option is only available if the setting for the **Parallel Port Mode** option is *ECP*. This option sets the DMA channel used by the parallel port. The settings are (*DMA Channel0*, *1*, or *3*).

Parallel Port IRQ This option specifies the IRQ used by the parallel port. The settings are *Auto*, (*IRQ*) *5*, or (*IRQ*) *7*.

Save And Exit Setup

Select this option when you finished setup the CMOS and it will save the change you made and reboot the system after you press "YES".

Exit Without Saving

If you decided not to save any change you had made, you can select this option to exit the CMOS setup and all the change you made will be ignored.



QUICK REFERENCE OF MOTHERBOARD

AT Power Supply Connector

According to the AT specification, one 12-pin power connector covers all the required power sources including $\pm 5V$ and $\pm 12V$.

ATX Power Supply Connector

According to the ATX specification, one 20-pin power connector covers all the required power sources including $\pm 5V$, $\pm 12V$ and $3.3V$, with soft-touch power on/off button feature.

AT Keyboard Connector

This connection is used for a standard IBM-compatible keyboard, such as 101 enhanced keyboard.

Parallel (Printer) Port Connector

One Parallel port with SPP, EPP and ECP capabilities.

Integrated Functions Connector

- I) From Pin1 to Pin5 is the first USB device “USB1” and Pin11 to Pin15 is the second USB device “USB2” connector. Universal Serial Bus (USB) is new interface standard for any I/O device “Outside the Box”. USB makes your peripherals have a real plug and play (PnP) capabilities with up to 12MB/sec data speed In the coming soon, any external device connected to your computer will be standardized into USB standard which are all have a special 4-pin rectangle shape connector. Therefore, with the Intel chipset, this motherboard builds two USB headers on-board for you future investment. If you are using an USB device, you must purchase an optional USB connector.
- II) From Pin6-10 is the PS/2 device, likes some PS/2 keyboard and mouse, are all have a standard 6-pin round shape connector. However, it does not have a unique onboard standard. Therefore, please refer to the Chapter “Motherboard Installation”, in order to purchase an suitable PS/2 Mouse Connector.
- III) From Pin16-20 is a 5-pin interface on the front panel I/O connector is provided to allow connection to a Hewlett Packard HSDSL-1000 compatible Infra-red (IrDA) transmitter/receiver. Once the module is connected to the front panel I/O header, Serial port 2 can be re-directed to the IrDA module. When configured for IrDA, the user can transfer files to or from portable devices such as laptops, PDA’s and printers using application software such as LapLink. The IrDA specification provides for data transfers at 115kbps from a distance of 1 meter. Support for Consumer Infra Red (ASK-IR) is also included, please refer to your IR equipment for more detailed information.

DIMM Sockets

Three 168 pins standard DIMM socket allows your system using either for 3.3V unbuffered SDRAM.

Serial (COM 1 and 2) Port Headers

This motherboard provides two high-speed 16550 compatible UART serial ports.

Accelerated Graphic Port (AGP)

The AGP is compatible with the Accelerated Graphics Port specification. The AGP offers a much higher throughput over the PCI bus does. PCI currently only supports 33Mhz can transport 133MB/s at peak rates over its 32bit data bus. AGP is clocked with 66Mhz, which enables a peak rate of 266 MB/s at the classic so called 'X1' mode. If using the 'X2' mode, it can transport up to 532MB/s at peak rate.

3V Lithium Battery

An on-board battery holder is used to hold a 3 Volts CR-2032 Lithium battery which makes the battery's replacement more convenient. This battery is used to supply power for the RTC CMOS RAM in order to save your system setting and date/time counting during system power-off. In general, the battery's life is about 5 years. If you see a "BIOS checksum error" message happened while system turn-on, the battery low may cause it. You can try to fix it by simply replaced the battery.

PCI Add-in Board Connectors

This motherboard provides PCI slots which allows expansion of PCI 2.1 compatible peripherals.

ISA Add-in Board Connectors

This motherboard provides two 16 bit ISA slots which allows backward hardware compatibility.

TB-LINK Interface

This headers interface supporting SCE8 and SCV6 Sound Cards using the Creative Audio Chip.

Front Panel Function Connector

For your convenience, all the front panel functions are integrated into a single connector, which included power LED and keyboard lock, turbo switch, reset switch, SMI switch and speaker.

Flash BIOS

The flash BIOS allows user to have more flexibility to upgrade their motherboards. The flash BIOS can be programmed by software easily.

Floppy Disk Drive Connector

A 34-pin connector on-board allows connection up to two 360K, 720K, 1.2M, 1.44, 2.88M floppy disk drives.

IDE Connectors

This motherboard have two independent high performance bus-mastering PCI IDE interfaces capable of supporting up to Mode 4 and UltraDMA-33 devices. The system BIOS supports automatic detection of the IDE device data transfer rate and translation between different kinds of device mode such as Logical Block Addressing (LBA), Extended Cylinder Sector Head (ECSH) translation modes and ATAPI (e.g., CD-ROM) devices on both IDE interfaces.

In a true multi-tasking operating systems like Windows® 95 and Windows® NT, the IDE interface can operate as a PCI bus master capable of supporting PIO Mode 4 devices with transfer rates of up to 16 MB/sec.

WAKEUP-LINK Interface

This header is used to connect an add-in NIC (Network Interface Card) which has Wake-On-LAN capability to the motherboard.

SB-LINK Interface

This header is a Creative SB-LINK™ interface, which supports the Sound Blaster® AWE64D PCI sound solutions. SB-LINK™ utilizes Intel's PC-PCI technology that exists in Intel 440LX or newer corelogic chipsets.

PS/2 Keyboard / Mouse Connectors

PS/2 device, like some PS/2 keyboard and mouse, all have a standard 6-pin round shape connector. The benefit of PS/2 device is one [of the serial port may be free for other serial device such as writing table. On this motherboard, there are two on-board PS/2 connectors, one for keyboard and one for mouse, which saves your money to buy any optional PS/2 connector module. If you are using a PS/2 mouse or keyboard, you can simply plug into the corresponding connector without any jumper setting.

USB Connectors

Universal Serial Bus (USB) is new interface standard for any I/O device “Outside the Box”. USB makes your peripherals have a real plug and play (PnP) capabilities with up to 12Mb/sec data speed. In the coming soon, any external device connected to your computer will be standardized into USB standard which all have a special 4-pin rectangle shape connector. Therefore, with the Intel chipset, this motherboard builds two USB connectors on-board for your future investment.

External I/O Connectors

Based on the ATX standard, two 9-pin serial ports and one 25-pin parallel port are now built on the motherboard back panel, too! This design makes your motherboard’s installation more easily. The parallel port can be BIOS configured into standard (SPP) mode, Enhanced Parallel Port (EPP) mode, and a high speed Extended Capabilities Port (ECP) compatible mode. EPP Mode requires a driver provided by the peripheral manufacturer in order to operate correctly.

Infra-Red (IR) Support

A 5-pin interface on the front panel I/O connector is provided to allow connection to a Hewlett Packard HSDSL-1000 compatible Infrared (IrDA) transmitter/receiver. Once the module is connected to the front panel I/O header, Serial port 2 can be re-directed to the IrDA module. When configured for IrDA, the user can transfer files to or from portable devices such as laptops, PDA’s and printers using application software such as LapLink. The IrDA specification provides for data transfers at 115kbps from a distance of 1 meter. Support for Consumer infrared (ASK-IR) is also included, please refer to your IR equipment for more detailed information.

PENTIUM II® Slot 1

The slot 1 is a 242-pin slot design for PENTIUM II®, single edge contact cartridge, along with a programmable voltage regulator for the CPU core. It provides users with a performance upgrade path to PENTIUM II® technology. The motherboard includes a switching voltage regulator which supports core voltages from 1.8V to 3.5V PENTIUM II® processors running at 233, 266 MHz and higher frequencies. The regulator makes use of the VID capabilities to automatically adjust its voltage output to match that of the installed processor, which eliminated the traditional jumper settings.



PENTIUM II® PROCESSOR CARD

The PENTIUM II⁰ processor integrates second level cache and cache controller that was previously implemented on the motherboard. The internal non-blocking L2 cache on the 233, 266 MHz processors card is 512k KB cache.

The PENTIUM II® processor card maintains full backward compatibility with the 8086, 80286, Intel386™, Intel486™ and Pentium® processors. It also has a numeric coprocessor that significantly increases the speed of floating point operations, while maintaining backward compatibility with the i486DX math coprocessor and complying with ANSI/IEEE standard 754-1985.

CPU FAN Connector

The CPU FAN connector connects to the power supply of the CPU fan.

GL520SM Microprocessor System Hardware Monitor

The GL520SM is a highly integrated circuit designed in CMOS technology which serves as a hardware monitor of any microprocessor based system. The GL520SM can be used to monitor temperatures, power supply voltages and fan speeds in a PC system. By connecting to an external thermistor for remote sensing applications, the GL520SM allows more flexibility in location of the sensor. The GL520SM will generate interrupts and drive different square-like wave which allows the speaker to sound the alarm when it detects the abnormal situation. Through the SMBus interface, the host can program the temperature trip points and query the GL520SM about the interrupt status, current temperature, voltage and fan speed.

