System Board

1.1   Features

The DX6G Plus is a dual-processor system board built on an extended ATX baseboard utilizing two Pentium® II processors running at 400/100 and 450/100 MHz or two Pentium® III processors running at 500/100 and 550/100 MHz. It is integrated with the Intel 440GX system controller, which consists of the PCI/AGP controller and the PCI/ISA IDE accelerator (PIIX4E).

The Pentium® II and Pentium® III processor implements a Dynamic Execution micro-architecture - a unique combination of multiple branch prediction, data flow analysis, and speculative execution. This means that it can deliver higher performance than the previous Pentium® processor while maintaining binary compatibility with all previous Intel Architecture processors.

The PCI/AGP controller host bus interface supports both Pentium® II and Pentium® III with 100 MHz bus frequency. It also provides a 72-bit DIMM that supports synchronous DRAM (SDRAM) DIMMs. The PCI/AGP controller introduces a new technology, which is the Accelerated Graphics Port (AGP) interface. Supporting up to 533MB/sec MHz data transfer rate, the AGP interface boosts graphics performance.

The PIIX4E is a multifunctional PCI device controller implementing system functions including PCI IDE, universal serial bus (USB) host/hub, and enhanced power management. It also supports Ultra DMA/33 synchronous DMA-compatible devices.

The four DIMM sockets on board allow memory upgrade to a maximum of 2048 MB and supports 72-bit DIMM using synchronous DRAM (SDRAM) DIMMs.

Two 16-bit Ultra-2 SCSI (Small Computer System Interface) and an 8-bit fast narrow SCSI comes with the system board to connect SCSI devices.

The system board also supports the USB (Universal Serial Bus) connector, and other standard features such as two UART NS16C550 serial ports, one enhanced parallel port with Enhanced Parallel Port (EPP)/Extended Capabilities Port (ECP) feature, a diskette drive interface, and two embedded hard disk interfaces. The board also includes a built-in 10/100 Mb/s Intel 82558 LAN chip that supports Wake-On-LAN (WOL).

The system supports the power-management function that conforms to the power-saving standards of the U.S. Environmental Protection Agency (EPA) Energy Star program. It also offers the Plug-and-Play feature. This feature saves the user from configuration troubles, thus making the system more user-friendly. The system board support Intel LDCM© (LAN Desktop Client Manager) which will detect problems in CPU thermal condition, CPU working voltage, CPU fan and the chassis fan malfunctions. It also provides remote monitoring features.

The system is fully compatible with MS-DOS V6.X, Novell Netware, Novel SFT III, SCO UNIX, Windows NT and Windows 95/98 operating systems

1.2   Major Components

The system board has the following major components:

- Supports dual Pentium® II processors running at 400 or 450 MHz, Pentium® III processors running at 500 or 550 MHz, and future generations Pentium CPUs.

- Four DIMM sockets that accept 16-, 32-, 64- 128-, 256 and 512MB DIMMs with a maximum of 2048 MB system memory

- One ISA, six PCI, and one AGP bus slots (one PCI and ISA shared slot)

- 512-KB Flash ROM for system BIOS

- System clock/calendar with battery backup

- One 50-pin fast SCSI and two 68-pin Ultra2 SCSI

- I/O APIC device for SMP interrupt support

- Integrates an enhanced PCI local bus IDE controller

- Intel 440GX chipset supports AGP (Accelerated Graphics Port) and Ultra DMA/33 functions

- 10/100 Mb/s Intel 82558 LAN chip that supports Wake-On-LAN (WOL)

- IDE hard disk and diskette drive interfaces

- Auxiliary power connector for 337W SPS (Optional) and 350W ATX power supply

- Super I/O, SCSI, memory, and LAN Desk Client Management (LDCM) controller chipsets

- External ports:

    - USB connector
    - RJ-45 jack
    - Parallel port

    - PS/2-compatible keyboard port
    - PS/2-compatible mouse port
   - Serial port 1 and 2

1.3   Layout
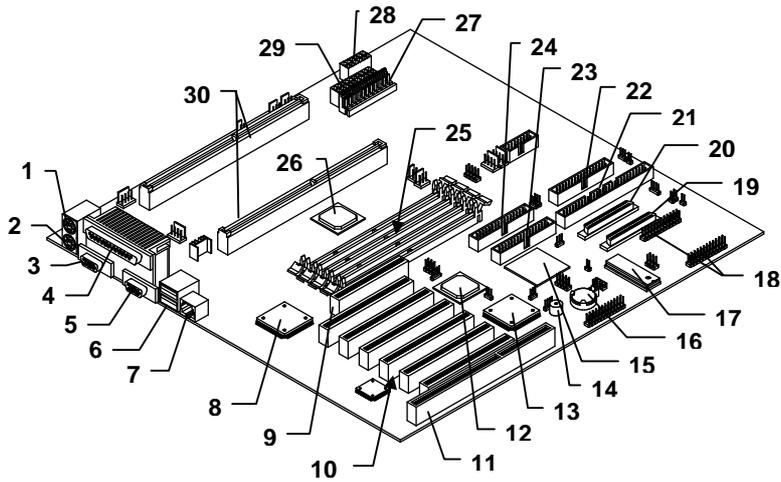
1	*Mouse port*	*17*	*System BIOS*
2	*Keyboard port*	*18*	*RDM connectors*
3	*Serial port 2*	*19*	*Channel 1 Ultra-wide/Ultra-2 SCSI connector (68 pin)*
4	*Parallel port*		
5	*Serial port 1*	*20*	*Channel 2 Ultra-wide/Ultra-2 SCSI connector (68 pin)*
6	*USB connector*		
7	*RJ-45*	*21*	*Channel 2 fast/narrow SCSI connector (50 pin)*
8	*LAN controller*		
9	*AGP slot*	*22*	*FDD connector*
10	*PCI slots*	*23*	*EIDE connector 2 (secondary)*
11	*ISA slot*	*24*	*EIDE connector 1 (primary)*
12	*Intel 82371EB PIIX4E (PCI-ISA bridge)*	*25*	*DIMM sockets*
		26	*Intel 443GX system controller*
13	*DEC 21152 (PCI-PCI bridge)*	*27*	*Power connector 1*
14	*Buzzer*	*28*	*Power connector 2*
15	*SCSI controller*	*29*	*Power connector 3*
16	*Battery*	*30*	*Slot 1 CPU sockets*

1.4 Jumpers and Connectors

1.4.1 Jumper and Connector Locations
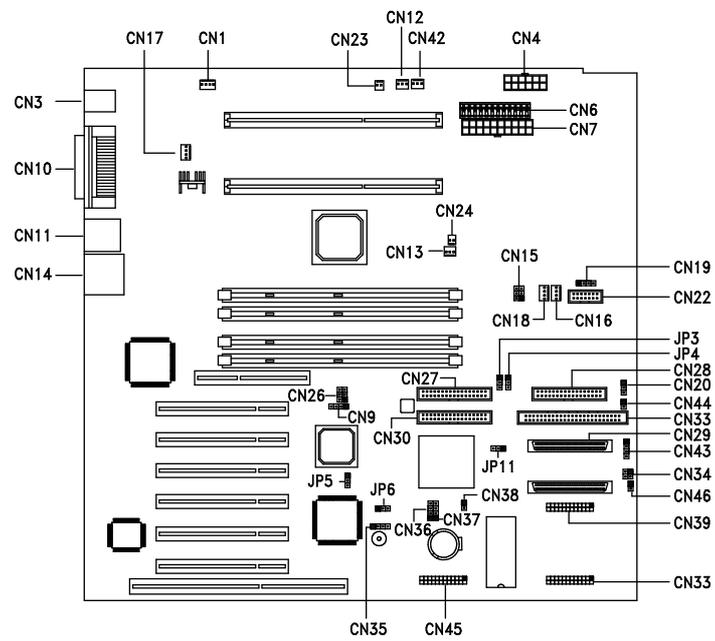
> Jumpers are prefixed ＂P". Connectors are prefixed ＂N". The blackened pin of a jumper or connector represents pin 1.

1.4.2   Jumper Settings

The table below lists the system board jumpers with their corresponding settings and functions.

Jumper	Setting	Function
BIOS Logo JP3	1-2* 2-3	Logo OEM
Password Security JP4	1-2 2-3*	Check password Bypass password
Boot Block Mode JP5	1-2 2-3*	Disabled Enabled
Sound Output JP6	1-2* 2-3	Buzzer Speakers
SCSI Channel 1Terminator JP11	1-2* 2-3	Enabled Disabled
AlertPack Select JP7	1-2 / 4-5 2-3 / 5-6*	AlertPack and LM80 LM80 only

---

* Default

1.4.3   Connector Functions

The table below lists the different connectors on the system board and their respective functions.

Connector	Function
CN1	Cabinet Fan Connector
CN4	337W Power Supply Connector (3.3V and 5V)
CN3	Mouse and Keyboard Ports
CN6	ATX Power Connector
CN7	Power Supply Connector
CN9	Modem Card Ring-in Connector
CN10	Parallel (above), Serial 1(left), and Serial 2 (right) ports
CN11	USB Connectors
CN12	CPU1 Fan Connector
CN13	CPU2 Fan Connector
CN14	RJ-45 (LAN) Port
CN15	Fail Report LED Connector
CN16	Cabinet Fan Connector
CN17	Cabinet Fan Connector
CN18	Cabinet Fan Connector
CN20	2 Color Power LED Connector
CN22	Redundant Power Status Connector
CN23	CPU1 Temperature Connector
CN24	CPU2 Temperature Connector
CN26	PCI Sound Card Interrupt and DMA Request Connector
CN27	Primary IDE Connector
CN28	FDD Connector
CN29	SCSI Channel 2 Wide Connector
CN30	Secondary IDE Connector
CN31	CD-in connector
CN32	SCSI Channel 1 Wide Connector

Connector	Function
CN33	SCSI Channel 2 Narrow Connector
CN34	RDM LED Connector
CN35	External Speaker Connector
CN36/CN37	External LED Connector
CN38	Power Switch Connector
CN39/CN47	N.A
CN40	Wake-on-LAN (WOL) Connector
CN42	3-pin Standby Power Connector
CN43	Hard Disk LED Connector
CN44	Reset Button Connector
CN45	Feature Connector (Intel SMM Card)
CN46	Door Switch Connector
CNX19	Backplane board connector (3-pin)

1.5   ESD Precautions

Always observe the following electrostatic discharge (ESD) precautions before installing a system component:

1. Do not remove a component from its antistatic packaging until you are ready to install it.

2. Wear a wrist grounding strap before handling electronic components. Wrist grounding straps are available at most electronic component stores.

> *Do not attempt the procedures described in the following sections unless you are a qualified technician.*

1.6   Installing the Pentium II and Pentium III processors

The following section will briefly explain and illustrate how to install the Pentium II and Pentium III processors.

> *You have to attached the fan sink before installing the processor into the system board.*

1.6.1   Attaching the Processor Fan Sink

There are currently two kinds of fan sink. Both of them can be easily attach to the processor module. The new fan sink includes a new metal retention bracket to hold the processor module more securely.

The processor module comes with holes on one side to hold the clips of the fan sink. The upper set of holes (near the latches) on the processor are wider and should match the wider ends of the clips on the fan sink. The lower set of holes are smaller and should match the narrow ends of the fan sink clips.
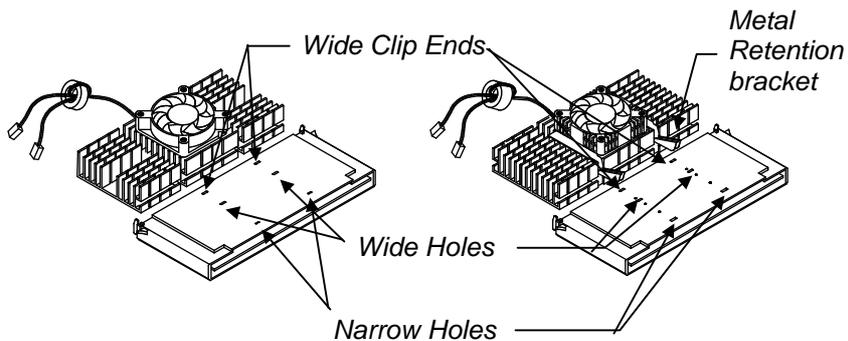
Follow these steps when installing the fan sink and fan into the processor module:

1.   Remove the thermal tape protector at the back of the fan sink.
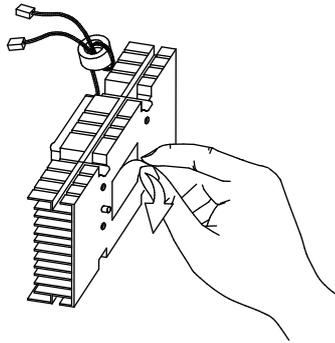
2.   Insert the wide clip ends into the wide holes on the processor and the narrow clip ends into the narrow holes.
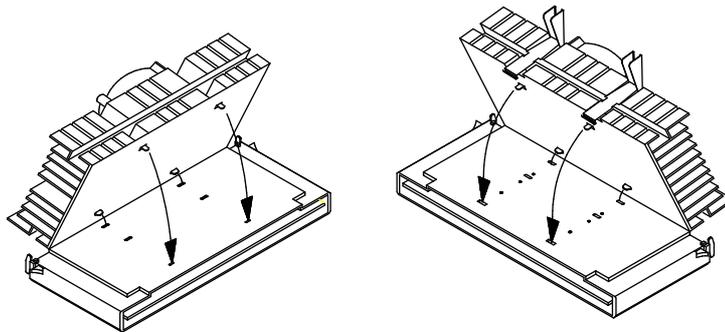
3a. Use a screwdriver to press and lock in the wide end of a clip first. Then without lifting the screwdriver, point it downward to press and lock the narrow end of the clip.
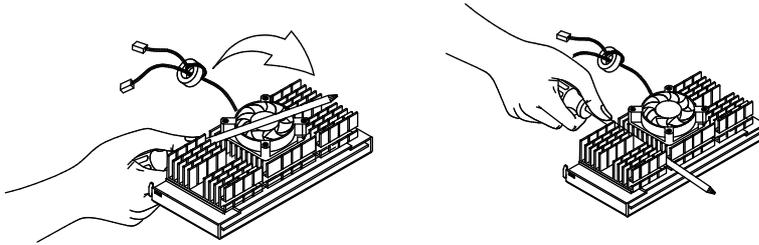
3b. Using your fingers, push down the metal bracket until it clicks into the CPU cartridge and then push the metal bracket handle to lock the metal bracket into place.
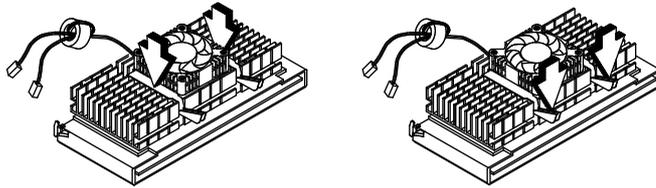
1.6.2   Installing a Pentium II or Pentium III Processor

Follow these steps to install the processor to the socket on the CPU board.

1a. Place the retention mechanism over the processor socket on the CPU board. Secure it with the screws that came with the package.
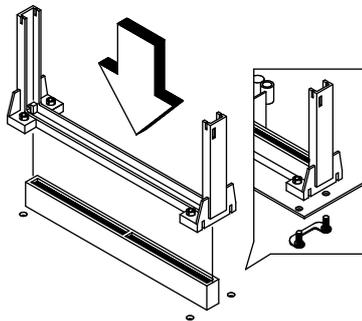
1b. Place the retention mechanism over the processor socket on the CPU board. Secure it with the plastic pegs that came with the package as shown below.
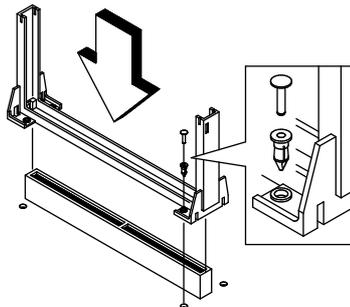
2. With the processor module golden fingers pointing downward,
    align the processor to the posts of the retention mechanism then
    lower it down.

> *The golden fingers of the processor module
> are slotted such that it only fits in one
> direction. Make sure that the module groove
> matches the one on the processor socket.*

3. Press down the processor module until the golden fingers
    completely fit into the socket.
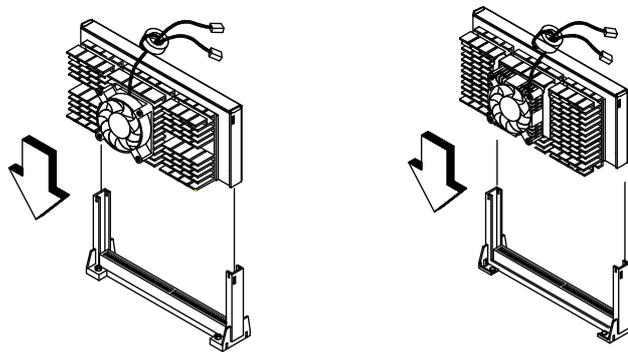
4. Press the latches on the sides to lock the processor module into
    place.
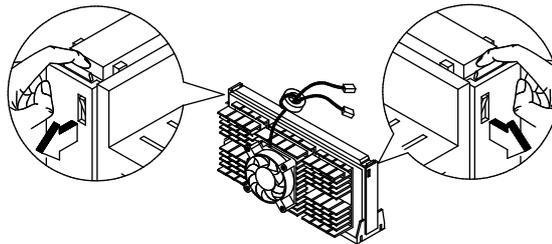
1.6.3 Removing a Pentium II or Pentium III Processor

Follow these steps to remove the processor module from the CPU slot.

1. Unlock the latches that secure the processor module.
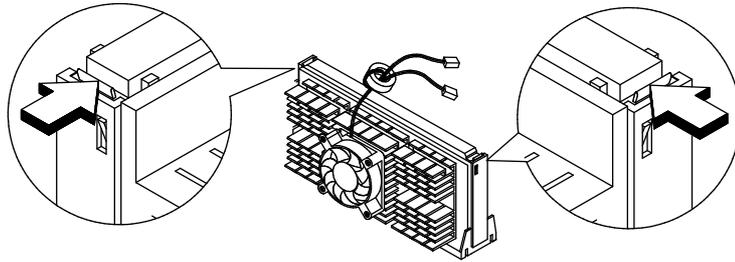
2. Firmly hold the processor module and pull it out of the socket.
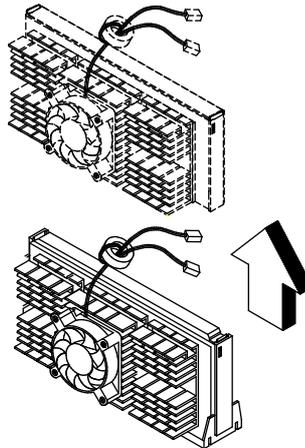
1.7　　　Memory Upgrade

The four 168-pin sockets onboard support SDRAM-type DIMMs. You may install 16-MB, 32-MB, 64-MB, 128-, 256-, or 512-MB (single and double density) DIMMs for a maximum of 2048-MB system memory.

The SDRAM DIMMs should work under 3.3 volts only; 5 volt memory devices are not supported. DX6G Plus supports both 100MHz standard and registered SDRAM. However, please do not use them at the same time.

> *Do not use both 66 MHz (unbuffered) and 100 MHz (registered) SDRAM together. This might cause your system to malfunction.*

Each of the sockets represents one independent bank. This allows you to install DIMMs with different capacities to form a configuration.

1.7.1　　　Memory Configurations

The table below lists some system memory configurations. You may combine DIMMs with various capacities to form other combinations.

DIMM1	DIMM2	DIMM3	DIMM4	Total Memory
32 MB				32 MB
32 MB	32 MB			64 MB
32 MB	32 MB	32 MB		96 MB
32 MB	32 MB	32 MB	32 MB	128 MB
64 MB				64 MB
64 MB	64 MB			128 MB
64 MB	64 MB	64 MB		192 MB
64 MB	64 MB	64 MB	64 MB	256 MB
128 MB				128 MB
128 MB	128 MB			256 MB

DIMM1	DIMM2	DIMM3	DIMM4	Total Memory
128 MB	128 MB	128 MB		384 MB
128 MB	128 MB	128 MB	128 MB	512 MB
256 MB				256 MB
256 MB	256 MB			512 MB
256 MB	256 MB	256 MB		768 MB
256 MB	256 MB	256 MB	256 MB	1024 MB
512 MB				512 MB
512 MB	512 MB			1024 MB
512 MB	512 MB	512 MB		1536 MB
512 MB	512 MB	512 MB	512 MB	2048 MB

1.7.2   Installing a DIMM

To install a DIMM, align it with the socket and press it down until the holding clips secure the DIMM in place.

> *The DIMM socket is slotted to ensure proper installation. If you slip in a DIMM but it does not completely fit, you may have inserted it the wrong way. Reverse the orientation of the DIMM.*
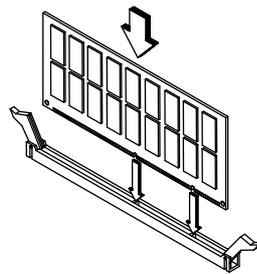
1.7.3   Removing a DIMM

To remove a DIMM, press the holding clips on both sides of the socket outward to release the DIMM.

> *Place your forefingers on the top of the DIMM before you press the holding clips to gently disengage the DIMM from the socket.*
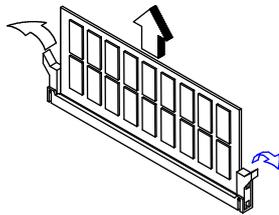
1.7.4   Reconfiguring the System

Reconfigure the system after installing or removing DIMMs.

Follow these steps to reconfigure the system:

1.   Reboot the system.   A memory error message appears, indicating that the total memory does not match the value stored in CMOS.

2.   Press DEL.

3.   Press ▬▬▬ twice to exit Setup and reboot the system.   The system boots with the new memory configuration.

1.8   Installing Expansion Cards

1.8.1   Installing PCI Cards

To install PCI cards:

1.   Locate the PCI slots on the system board.

2.   Remove the bracket on the housing opposite an empty PCI slot.

3.   Insert a PCI card into the slot.   Make sure that the card is properly seated.

4.   Secure the card to the housing with a screw.

When you turn on the system, BIOS automatically detects and assigns resources to the PCI devices.
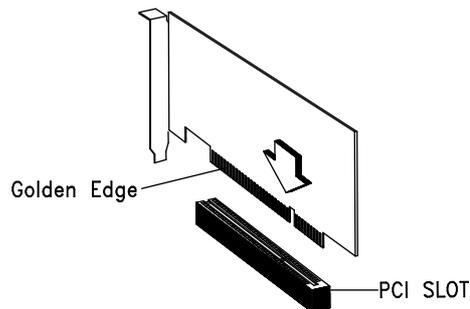
1.8.2   Installing ISA Cards

Both PnP and non-PnP ISA cards require specific IRQs.   When installing ISA cards, make sure that the IRQs required by these cards are not previously assigned to PCI devices to avoid resource conflicts.

Follow these steps when installing ISA cards:

1. Remove all PnP cards installed in the system, if any.

2. Install non-PnP ISA cards.

3. Turn on the system.

4. Use the operating system or ICU to manually assign the appropriate IRQs to the cards. This ensures that BIOS will not use the resources assigned to the non-PnP ISA cards.

> *BIOS detects and configures only PnP cards.*

5. Turn off the system.

6. Locate the expansion slots and install the PnP ISA and PCI cards.

7. Turn on the system. This time PnP BIOS automatically configures the PnP ISA and PCI cards with the available resources.
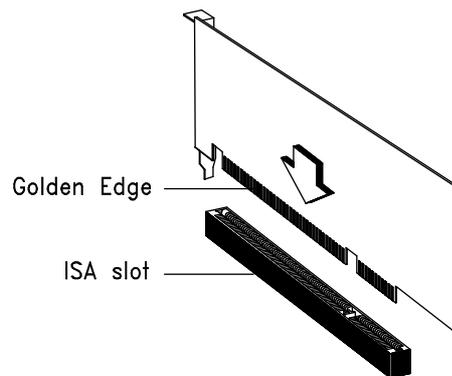
1.8.3 Installing AGP Card

When installing an AGP card, make sure that the IRQ required by the card is not already assigned to a PCI or ISA device to avoid resource conflicts.

Follow these steps when installing an AGP card:

1. Locate the AGP slot on the mainboard.

2. Insert an AGP card into the slot. Make sure that the card is properly seated.

Golden Edge

AGP SLOT
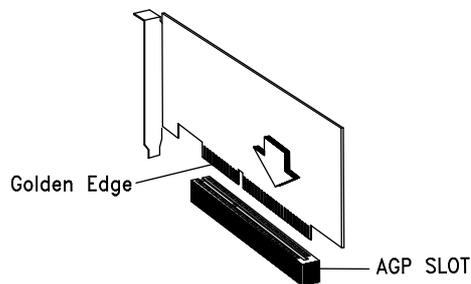
When you turn on the system, BIOS automatically detects and assigns resources to the AGP device.

BIOS detects and configures only PnP cards.

1.9   LDCM

Intel® LANDesk® Client Manager Version 3.3 is an application that simplifies local and network management of mobile and desktop client systems. It monitors PC health to provide local and remote alerts. It gives local and remote views of hardware and software component, even via dial-up. And it does all this through standards and industry initiatives such as Desktop Management Interface (DMI), Simple Network Management Protocol (SNMP) and the Wired for Management (WfM) Initiative.

This release is pre-installed on Original Equipment Manufacturers (OEMs) PCs and is designed to lower the cost of PC ownership while providing greater control and flexibility to systems administrators.

Key features

Wired for Management Baseline Version 2.0 compliance.

Remote wake-up

Remote dial-up

Dynamic mobile devices

International languages

Real-time monitoring and alerting of hard drive, memory, fan, power supply and temperature.

DMI v2.0-based local and remote client management.

SNMP Trap generation for enterprise alerting.

Certificate-based authentication for enhanced security.

Software Development Kit (SDK) for OEM customization.

1.10   Error Messages

Do not continue using the computer if you receive an error message of any type. Note the message and take corrective action. This section explains the different types of error messages and corresponding corrective measures.

There are two general types of error messages:

* Software

* System

1.10.1   Software Error Messages

Software error messages are returned by your operating system or application. These messages typically occur after you boot the operating system or when you run your applications. If you receive this type of message, consult your application or operating system manual for help.

1.10.2   System Error Messages

A system error message indicates a problem with the computer itself. A message of this type normally appears during the power-on self-test, before the operating system prompt appears.

The table below lists possible system error messages.

Message	Action
CMOS Battery Error	Replace the battery or contact your dealer.
CMOS Checksum Error	Run Setup.
CPU BIOS Update Code Mismatch	Contact your dealer.

Message	Action
Diskette Drive Controller Error or Not Installed	Check and connect the control cable to the diskette controller.
Diskette Drive Error	Check the CMOS settings in Setup and the diskette drive cable connections.
Diskette Drive A Type Mismatch	Run Setup and select the proper drive type.
Diskette Drive B Type Mismatch	Run Setup and select the proper drive type.
Equipment Configuration Error	Modify DRAM configuration to agree with one of the options in Table 1-3.
Hard Disk Controller Error	Run Setup.
Hard Disk 0 Error	Check all cable connections. Replace hard disk.
Hard Disk 1 Error	Check all cable connections. Replace hard disk.
Hard Disk 0 Extended Type Error	Run Setup.
Hard Disk 1 Extended Type Error	Run Setup.
I/O Parity Error	Contact your dealer.
Keyboard Error or No Keyboard Connected	Check and connect the keyboard to the system unit.
Keyboard Interface Error	Replace the keyboard or contact your dealer.
Memory Error at: MMMM:SSSS:OOO (W:XXXX, R:YYYY) where: M: MB, S: Segment, O: Offset, X/Y: write/read pattern	Check DIMMs on the system board. Contact your dealer.

Message	Action
Memory Size Mismatch CPU Clock Mismatch	Check the memory size based on the system specifications. Check the internal cable connections. If you are sure that connections and values are correct, ignore the message. If the message reappears, ask for technical assistance.
Onboard Serial Port 1 Conflict	Run Setup and disable the port.
Onboard Serial Port 2 Conflict	Run Setup and disable the port.
Onboard Parallel Port Conflict	Run Setup and disable the port.
Pointing Device Error	Check and connect pointing device.
Pointing Device Interface Error	Replace the pointing device or contact your dealer.
Press F1 key to continue or Del for Setup	Press ⌈F1⌉ or ▭ to enter Setup.
Real Time Clock Error	Run Setup and set the time and date.
Press Esc to turn off NMI, any key to reboot	Press ▭ to disregard the NMI error. Press any other key to reboot the system.

1.10.3   Correcting Error Conditions

As a general rule, if an error message says "Press F1 to continue," it is caused by a configuration problem, which can be easily corrected. An equipment malfunction is more likely to cause a fatal error, i.e., an error that causes complete system failure.

Here are some corrective measures for error conditions:

1. Run Setup. You must know the correct configuration values for your system before you enter Setup, which is why you should write them down when the system is correctly configured. An incorrect configuration is a major cause of power-on error messages, especially for a new system.

2. Remove the system unit cover. Check that the jumpers on the system board and any expansion boards are set correctly.

3. If you cannot access a new disk, it may be because your disk is not properly formatted. Format the disk first using the FDISK and FORMAT commands.

4. Check that all connectors and boards are securely plugged in.

If you go through the corrective steps above and still receive an error message, the cause may be an equipment malfunction.

If you are sure that your configuration values are correct and your battery is in good condition, the problem may lie in a damaged or defective chip.

In either case, contact an authorized service center for assistance.

Chapter

2

Setup Utility

Most systems are already configured by the manufacturer or the dealer. There is no need to run Setup when starting the computer unless you get a Run Setup message.

The Setup program loads configuration values into the battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM.

> *If you repeatedly receive Run Setup messages, the battery may be bad. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.*

Before you run Setup, make sure that you have saved all open files. The system reboots immediately after you exit Setup.

2.1   Entering Setup

To enter Setup, simultaneously press the key ▂▂▂.

> *You must press ▂▂▂. while the system is booting. This key combination does not work during any other time.*

The Setup Utility Main Menu appears:

Setup Utility

```
• System Information
• Product Information
• Disk Drives
• Onboard Peripherals
• Power Management
• Boot Options
• Date and Time
• System Security
• System Event Log

• Advanced Options
  Load Default Settings
  Abort Settings Change
```

The system supports two BIOS Utility levels: Basic and Advanced.
Basic function: PnP/PCI Options
Advanced functions: Memory/Cache Options
                    CPU Frequency

If you are an advanced user, you may want to check the detailed configuration of your system. Detailed system configurations are contained in the Advanced Level. To view the Advanced Level, press F8 .

> *The asterisk (*) mark indicates that the parameter appears only when you are in the Advanced Level.*
>
> *The parameters on the screens show default values. These values may not be the same as those in your system.*
>
> *The grayed items on the screens have fixed settings and are not user-configurable.*

Use the arrow keys ⬆, ⬇ to move around the Setup Utility screen.

Press ⬛ to return to the Main menu.

2.2   System Information

The following screen appears if you select System Information from the Main menu:

```
                        System Information

    Processor .......................... Pentium® II
    Processor Speed..................... 400 MHz
    Internal Cache..................... 32 KB, Enabled
    External Cache..................... 512 KB, Enabled
    Diskette Drive A................... 1.44 MB, 3.5-inch
    Diskette Drive B................... None
    IDE Primary Channel Master ........ Hard Disk, xxx MB
    IDE Primary Channel Slave ......... None
    IDE Secondary Channel Master....... None
    IDE Secondary  Channel Slave ...... None
    Total Memory....................... xxx MB
      1st Bank......................... SDRAM, xxx MB
      2nd Bank......................... None
      3rd Bank ........................ None
      4th Bank ........................ None
```

The System Information menu shows the current basic configuration
of your system.

The next screen shows page 2 of the System Information menu.

```
                        System Information

    Serial Port 1...................... 3F8h, IRQ 4
    Serial Port 2...................... 2F8h, IRQ 3
    Parallel Port...................... 378h, IRQ 7
    PS/2 Mouse......................... Installed




```

The sections below explain the parameters.

2.2.1   Processor

The Processor parameter specifies the type of processor currently installed in your system. The system supports Intel Pentium® II and Pentium® III processors.

2.2.2   Processor Speed

The Processor Speed parameter specifies the speed of the processor currently installed in your system.

2.2.3   Internal Cache

This parameter specifies the first-level or the internal memory (i.e., the memory integrated into the CPU) size, and whether it is enabled or disabled.

2.2.4   External Cache

This parameter specifies the second-level cache memory size currently supported by the system. The available cache sizes are 512 KB.

2.2.5   Diskette Drive A

This parameter specifies the system   current diskette drive A settings.

2.2.6   Diskette Drive B

This parameter specifies the system   current diskette drive B settings.

2.2.7 IDE Primary Channel Master

This parameter specifies the current configuration of the IDE device connected to the master port of the primary IDE channel.

2.2.8 IDE Primary Channel Slave

This parameter specifies the current configuration of the IDE device connected to the slave port of the primary IDE channel.

2.2.9 IDE Secondary Channel Master

This parameter specifies the current configuration of the IDE device connected to the master port of the secondary IDE channel.

2.2.10 IDE Secondary Channel Slave

This parameter specifies the current configuration of the IDE device connected to the slave port of the secondary IDE channel.

2.2.11 Total Memory

This parameter specifies the total amount of onboard memory. The memory size is automatically detected by BIOS during the POST. If you install additional memory, the system automatically adjusts this parameter to display the new memory size.

1st Bank/2nd Bank/3rd Bank/4th Bank

The 1st Bank, 2nd Bank, 3rd Bank, and 4th Bank parameters indicate the type and size of DRAM installed in DIMM sockets 1, 2, 3, and 4 respectively. The None setting indicates that there is no DRAM installed. For the location of the DIMM sockets, refer to section 1.3 or 1.4.

2.2.12   Serial Port 1

This parameter shows the serial port 1 address and IRQ setting.

2.2.13   Serial Port 2

This parameter shows the serial port 2 address and IRQ setting.

2.2.14   Parallel Port

This parameter shows the parallel port address and IRQ setting.

2.2.15   PS/2 Mouse

The BIOS utility automatically detects if there is a pointing device connected to your system. If there is, this parameter displays the Installed setting. Otherwise, this is set to None.

2.3 Product Information

The Product Information contains the general data about the system, such as the product name, serial number, BIOS version, etc. This information is necessary for troubleshooting (may be required when asking for technical support).

The following shows how the Product Information screen appears:

```
                        Product Information

  Product Name..........................DX6G Plus
  System S/N............................xxxxxxxxx
  Main Board ID.........................DX6G PLUS
  Main Board S/N .......................N/A
  System BIOS Version...................v3.1 R0.01
  SMBIOS Version........................2.1
  System BIOS ID........................R0.01
  BIOS Release Date.....................Jun 02'99
```

2.3.1 Product Name

This parameter specifies the official name of the system.

2.3.2 System S/N

This parameter specifies the system serial number.

2.3.3 Main Board ID

This parameter specifies the system board identification number.

2.3.4   Main Board S/N

This parameter specifies the system board   serial number.

2.3.5   System BIOS Version

This parameter specifies the version of the BIOS utility.

2.3.6   SMBIOS Version

This parameter specifies the version of the SMBIOS version.

2.3.7   System BIOS ID

This parameter specifies AOpen BIOS ID.

2.3.8   BIOS Release Date

This parameter specifies the BIOS release date.

2.4　Disk Drives

Select Disk Drives to input configuration values for disk drives.

The following screen shows the Disk Drives menu:

```
                        Disk Drives

  Diskette Drive A.......................[xx-MB, xx-inch]
  Diskette Drive B.......................[     None     ]

  LS-120 Drive as........................[ Normal ]

  • IDE Primary Channel Master
  • IDE Primary Channel Slave
  • IDE Secondary Channel Master
  • IDE Secondary Channel Slave
```
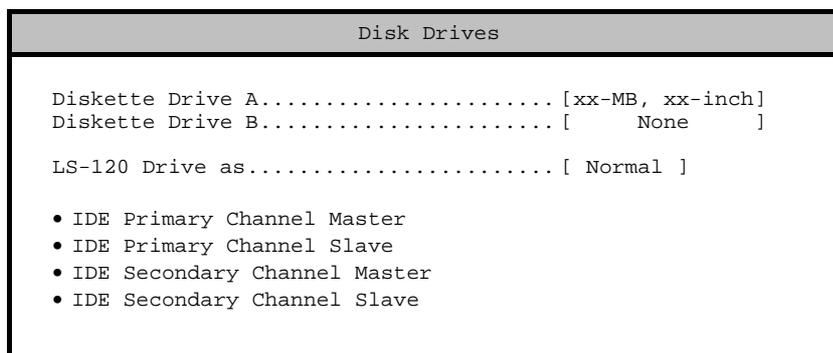
2.4.1　Floppy Drives

To enter the configuration value for the first floppy drive (drive), highlight the Floppy Drive A parameter. Press ➡ or ⬅ key to view the options and select the appropriate value.

Possible settings for the Floppy Drive parameters are:

- [None   ]
- [360 KB,   5.25-inch]
- [1.2 MB,   5.25-inch]
- [720 KB,   3.5-inch]
- [1.44 MB,   3.5-inch]
- [2.88 MB,   3.5-inch]

Follow the same procedure to configure floppy drive . Choose `None`
if you do not have a second floppy drive.

2.4.2   LS-120 Drive As

This parameter allows you not only to enable the LS-120 device
installed in your system, but also to specify the function of the device.
The setting affects how BIOS will detect the device.

Possible settings are:

- `Normal`   In this setting, BIOS does not support the LS-120
  drive. The drive needs the LS-120 device driver to operate.

- `Drive A`   BIOS recognizes the LS-120 drive as drive A. If a
  standard diskette drive A exists, BIOS automatically identifies it
  as drive B. If a standard diskette drive B exists, it automatically
  becomes inaccessible.

  If two LS-120 drives exist, BIOS recognizes them as drive A and
  drive B, respectively.

- `Drive B`   BIOS recognizes the LS-120 drive as drive B. If a
  standard diskette drive B exists, it becomes inaccessible.

- `Hard Disk`   BIOS recognizes the LS-120 drive as a hard disk.
  In this setting, format the LS-120 drive as any other hard disk and
  assign it a drive letter C, D, E, and so on. See the documentation
  that came with the LS-120 drive for more information.

2.4.3   IDE Drives

To configure the IDE drives connected to your system, select the
parameter that represents the channel and port where the desired
hard disk to configure is connected. The options are:

IDE Primary Channel Master

This parameter lets you configure the hard disk drive connected to the master port of IDE channel 1.

IDE Primary Channel Slave

This parameter lets you configure the hard disk drive connected to the slave port of IDE channel 1.

IDE Secondary Channel Master

This parameter lets you configure the hard disk drive connected to the master port of IDE channel 2.

IDE Secondary Channel Slave

This parameter lets you configure the hard disk drive connected to the slave port of IDE channel 2.

The following screen appears if you select any of the IDE Drive parameters:

```
                    IDE Primary/Secondary
                     Channel Master/Slave


   Type ...........................[ Auto ]
     Cylinder .....................[ XXXX ]
     Head .........................[ XXXX ]
     Sector .......................[ XXXX ]
     Size .........................[ XXXX ] MB


  Hard Disk Size > 504MB .........[ Auto ]
 *Hard Disk Block Mode ...........[ Auto ]
 *Advanced PIO Mode ..............[ Auto ]
 *Hard Disk 32-bit Access ........[Enabled ]
 *DMA Transfer Mode ..............[Auto]
```

The above parameters marked with '' will only appear if you access the advanced level option in the Main Menu. Please refer to section 2.1 for more information.*

TYPE

This parameter lets you specify the type of hard disk installed in your system. If you want BIOS to automatically configure your hard disk, select Auto. If you know your hard disk type, you can enter the setting manually.

Setting this parameter also sets the Cylinder, Head, Sector, and Size parameters.

CYLINDERS

This parameter specifies the number of cylinders of your hard disk, and is automatically set depending on your Type parameter setting.

HEADS

This parameter specifies the number of heads of your hard disk, and is automatically set depending on your Type parameter setting.

SECTORS

This parameter specifies the number of sectors of your hard disk, and is automatically set depending on your Type parameter setting.

SIZE

This parameter specifies the size of your hard disk, in MB.

Enhanced IDE Features

<u>**HARD DISK SIZE > 504 MB**</u>

When set to `Auto`, the BIOS utility automatically detects if the installed hard disk supports the function. If supported, it allows you to use a hard disk with a capacity of more than 504   B. This is made possible through the Logical Block Address (LBA) mode translation. However, this enhanced IDE feature works only under DOS, Windows 3.x, Windows 95, and Windows NT 3.5 and above. Other operating systems require this parameter to be set to `Disabled`.

<u>**HARD DISK BLOCK MODE**</u>

This function enhances disk performance depending on the hard disk in use. If you set this parameter to `Auto`, the BIOS utility automatically detects if the installed hard disk drive supports the Block Mode function. If supported, it allows data transfer in blocks (multiple sectors) at a rate of 256 bytes per cycle. To disregard the feature, change the setting to `Disabled`.

<u>**ADVANCED PIO MODE**</u>

When set to `Auto`, the BIOS utility automatically detects if the installed hard disk supports the function. If supported, it allows for faster data recovery and read/write timing that reduces hard disk activity time. This results in better hard disk performance. To disregard the feature, change the setting to `Disabled`.

<u>**HARD DISK 32-BIT ACCESS**</u>

Enabling this parameter improves system performance by allowing the use of the 32-bit hard disk access. This enhanced IDE feature works only under DOS, Windows 3.x, Windows 95, Windows NT, and Novell NetWare. If your software or hard disk does not support this function, set this parameter to `Disabled` .

DMA TRANSFER MODE

The Ultra DMA and Multi-DMA modes enhance hard disk performance by increasing the transfer rate. However, besides enabling these features in the BIOS Setup, both the Ultra DMA and Multi-DMA modes require the DMA driver to be loaded. By setting this parameter to Auto, BIOS automatically sets the appropriate DMA mode for your hard disk.

2.5   Onboard Peripherals

The Onboard Peripheral Configuration allows you to configure the onboard communication ports and the onboard devices. Selecting this option displays the following screen:

```
┌──────────────────────────────────────────────────────────┐
│                   Onboard Peripherals                     │
├──────────────────────────────────────────────────────────┤
│                                                           │
│   Serial Port 1....................... [Enabled ]         │
│      Base Address.................... [3F8h]              │
│      IRQ............................. [4]                 │
│                                                           │
│   Serial Port 2....................... [Enabled ]         │
│      Base Address.................... [2F8h]              │
│      IRQ............................. [3]                 │
│                                                           │
│   Parallel Port....................... [Enabled ]         │
│      Base Address.................... [378h]              │
│      IRQ............................. [7]                 │
│      Operation Mode.................. [Standard]          │
│       ECP DMA Channel............... [-]                 │
│                                                           │
│   •Onboard Device Settings                                │
│                                                           │
└──────────────────────────────────────────────────────────┘
```

2.5.1   Serial Ports 1 and 2

These parameters allow you to enable or disable serial ports 1 and 2.

Base Address

This function lets you set a logical base address for serial ports 1 and 2. The options are:

- 3F8h
- 2F8h
- 3E8h
- 2E8h

IRQ

This function lets you assign an interrupt for serial ports 1 and 2. The options for serial ports 1 are IRQ 4 and 11. The options for serial port 2 are IRQ 3 and 10.

> *The Base Address and IRQ parameters for each port are configurable only if the port is enabled.*

2.5.2   Parallel Port

This parameter allows you to enable or disable the parallel port.

Base Address

This function lets you set a logical base address for the parallel port. The options are:

● 3BCh   ● 378h   ● 278h

IRQ

This function lets you assign an interrupt for the parallel port. The options are IRQ 5 and 7.

> *The Base Address and IRQ parameters are configurable only if Parallel Port is enabled.*
>
> *If you install an add-on card that has a parallel port whose address conflicts with the onboard parallel port, a warning appears on the screen.*
>
> *Check the parallel port address of the add-on card and change the address to one that does not conflict.*

Operation Mode

This item allows you to set the operation mode of the parallel port. The table below lists the different operation modes.

Setting	Function
Standard Parallel Port (Standard)	Allows normal speed one-way operation
Standard and Bidirectional (Bidirectional)	Allows normal speed operation in a two-way mode
Enhanced Parallel Port (EPP)	Allows bidirectional parallel port operation at maximum speed
Extended Capabilities Port (ECP)	Allows parallel port to operate in bidirectional mode and at a speed higher than the maximum data transfer rate

ECP DMA CHANNEL

This item becomes active only if you select `Extended Capabilities Port (ECP)` as the operation mode. It allows you to assign DMA channel 1 or DMA channel 3 for the ECP parallel port function (as required in Windows 95).

2.5.3   Onboard Device Settings

The Onboard Device Settings menu allows you to configure the onboard communication ports and the onboard devices. Selecting this option from the Onboard Peripherals menu displays the following screen:

```
                    Onboard Device Settings

     Floppy Disk Controller.............. [Enabled ]
     IDE Controller...................... [Both    ]
     PS/2 Mouse Controller............... [Enabled ]
     USB Host Controller................. [Enabled ]
       USB Legacy Mode................... [Disabled]
     Onboard SCSI........................ [Enabled ]
       Boot from SCSI Device............. [Enabled ]
     SMBus Interrupt(IRQ9)............... [Disabled]
     Onboard Ethernet Chip............... [Enabled ]
     Alert on LAN........................ [Disabled]
```

Floppy Disk Controller

This parameter lets you enable or disable the onboard floppy disk controller.

IDE Controller

Set this parameter to Primary to enable only the primary IDE controller; Both to enable both primary and secondary IDE controllers; or Disabled to disable all IDE controllers.

PS/2 Mouse Controller

This parameter enables or disables the onboard PS/2 mouse controller.

USB Host Controller

This parameter lets you enable or disable the USB controller on board. When enabled, it activates the USB function of the system. When disabled, it deactivates the function.

This function, when enabled, lets you use a USB keyboard in DOS. Set this to `Disabled` to deactivate the USB keyboard function in DOS.

Onboard SCSI Device

This parameter lets you enable or disable the SCSI controller on board. When enabled, it activates the SCSI function of the system. When disabled, it also deactivates the function.

BOOT FROM ONBOARD SCSI DEVICE

When set to `Enabled`, the system checks for a bootable SCSI device. If a SCSI device is present, the system boots from that device; otherwise, it boots from the drive specified in the System Boot Drive parameter. When set to `Disabled`, the system boots from the drive specified in the System Boot Drive parameter.

SMBus Interrupt (IRQ9)

The System Management Bus (SMBus) is used for controlling and getting information from devices on a motherboard. It was designed for hybrid devices based on analog semiconductor technologies and with limited digital capabilities. This parameter allows you to enable or disable this feature.

Onboard Ethernet Chip

This parameter allows you to enable or disable the onboard network feature.

Alert on LAN

This function is disabled.

2.6　　Power Management

The Power Management menu allows you to configure the system power-management feature.

The following screen shows the Power Management parameters and their default settings:

```
                    Power Management

   Power Management Mode................. [Enabled]
     IDE Hard Disk Standby Timer......... [Off]
     System Sleep Timer.................. [Off]
        Sleep Mode....................... [----]

   Power Switch < 4 sec. ............... [Suspend]

   System Wake-up Event
     Modem Ring Indicator............... [Disabled]
```

2.6.1　　Power Management Mode

This parameter allows you to reduce power consumption. When this parameter is set to Enabled, you can configure the IDE hard disk and system timers. Setting it to Disabled deactivates the power-management feature and its timers.

IDE Hard Disk Standby Timer

This parameter allows the hard disk to enter standby mode after inactivity of 1 to 15 minutes, depending on your setting. When you access the hard disk again, allow 3 to 5 seconds (depending on the hard disk) for the disk to return to normal speed. Set this parameter to OFF if your hard disk does not support this function.

System Sleep Timer

This parameter sets the system to the lowest power-saving mode after a specified period of inactivity. Any keyboard or mouse action or any activity detected from the IRQ channels resumes system operation.

<u>**SLEEP MODE**</u>

This parameter lets you specify the power-saving mode that the system will enter after a specified period of inactivity. The options are `Standby` and `Suspend` modes.

This parameter becomes configurable only if the System Sleep Timer is enabled. Any keyboard or mouse action, or any enabled monitored activities occurring through the IRQ channels resume system operation.

2.6.2   Power Switch < 4 sec.

When set to `Power Off`, the system automatically turns off when the power switch is pressed for less than 4 seconds. When set to `Suspend`, the system enters the suspend mode when pressed for less than 4 seconds.

2.6.3   System Wake-up Event

The system wake-up event allows the system to resume operation when the modem ring indicator is enabled.

Modem Ring Indicator

When `Enabled`, any fax/modem activity wakes up the system from suspend mode. The default setting is `Disabled`.

2.6.4 Boot Options

This option allows you to specify your preferred setting for bootup.

The following screen appears if you select Boot Options from the Basic Configuration menu:

```
                        Boot Options

    Boot Sequence
      1st [Floppy Disk]
      2nd [Hard Disk  ]
      3rd [IDE CD-ROM ]
      4th [LANDesk® Service Agent]

    First Hard Disk Drive................ [SCSI]

    Fast Boot........................... [Auto]
    Silent Boot......................... [Enabled]
    Num Lock After Boot................. [Enabled]
    Memory Test......................... [Disabled]
    Release All Blocked Memory.......... [Enabled]
   *Configuration Table................. [Enabled]
    Boot from LanDesk Service Agent..... [Disabled]
```

> *The above parameter marked with '*' will only appear if you access the advanced level option in the Main Menu. Please refer to section 2.1 for more information.*

2.6.5 Boot Sequence

This parameter allows you to specify the boot search sequence during POST.

- 1st. The system checks this drive first.

Setup Utility   *2-23*

- 2nd. The system then checks this drive if it can not boot from the 1st specified drive.

- 3rd. If the 1st and 2nd searches fail then it boots from this drive.

- 4th. If the 1st, 2nd, and 3rd searches fail then it boots from this drive.

BIOS will display an error message if the drive(s) specified is not bootable.

> *Select the target boot device firstly, press* ▭ *to up move this item and press* $\boxed{\text{PGDN}}$ *to down move this item.*

2.6.6 First Hard Disk Drive

This parameter specifies whether the BIOS utility will boot from an EIDE hard disk drive or a SCSI hard disk drive. The system will automatically boot from an EIDE hard disk if your system does not have a SCSI hard disk drive. The default setting is SCSI.

2.6.7 Fast Boot

This parameter allows the system to boot faster by skipping some POST routines. The default setting is Auto.

2.6.8   Silent Boot

This parameter enables or disables the Silent Boot function. When set to `Enabled`, BIOS is in graphical mode and displays only an identification logo during POST and while booting. After booting the screen displays the operating system prompt (such as DOS) or logo (such as Windows 95). If any error occurs while booting, the system automatically switches to the text mode.

Even if your setting is `Enabled`, you may also switch to the text mode while booting by pressing DEL when you see the " Enter Setup, Press <DEL> Key " message on the screen.

When set to `Disabled`, BIOS is in the conventional text mode where you see the system initialization details on the screen.

2.6.9   Num Lock After Boot

This parameter allows you to activate the Num Lock function upon booting. The default setting is `Enabled`.

2.6.10   Memory Test

When set to `Enabled`, this parameter allows the system to perform a RAM test during the POST routine. When set to `Disabled`, the system detects only the memory size and bypasses the test routine. The default setting is `Disabled`.

2.6.11   Release All Blocked Memory

When set to Enabled, this parameter allows system to bypass testing the defective memory banks detected earlier.

2.6.12   Configuration Table

This parameter allows you to enable or disable the appearance of the configuration table after POST but before booting. The configuration table gives a summary of the hardware devices and settings that BIOS detected during POST.

2.6.13   Boot from LANDesk Service Agent

When set to Enabled, the system boots from a LANDesk Service Agent network instead of your desktop system. The LANDesk Service Agent is IEEE-standards-based code that intervenes in the boot process. Please refer to your LANDesk Manual for more information.

When set to Disabled, the system boots from the drive specified in the Boot Sequence parameter.

2.7   Date and Time

The real-time clock keeps the system date and time. After setting the date and time, you do not need to enter them every time you turn on the system.   As long as the internal battery remains good (approximately seven years) and connected, the clock continues to keep the date and time accurately even when the power is off.

```
                        Boot Options

  Date.................................. [Fri Jun 11,1998]
  Time.................................. [HH:MM:SS]




```

2.7.1   Date

Highlight the items on the Date parameter and press ➡ or ⬅ to set the date following the weekday-month-day-year format.

Valid values for weekday, month, day, and year are:

- Weekday   Sun, Mon, Tue, Wed, Thu, Fri, Sat
- Month   Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec
- Day   1 to 31
- Year   1980 to 2099

2.7.2   Time

Highlight the items on the Time parameter and press ⇨ or ⇦ to set the time following the hour-minute-second format.

Valid values for hour, minute, and second are:

- Hour   00 to 23
- Minute   00 to 59
- Second   00 to 59

2.8   System Security

The Setup program has a number of security features to prevent unauthorized access to the system and its data.

The following screen appears if you select System Security from the Main menu:

```
                    System Security

  Setup Password..................[None]
  Power-on Password...............[None]
    Operation Mode................[Normal]


  Disk Drive Control
    Floppy Drive..................[Normal]
    Hard Disk Drive...............[Normal]

```

2.8.1   Setup Password

The Setup Password prevents unauthorized access to the BIOS utility.

To set or change a Password:

1.   Make sure that JP4 is set to 2-3 (bypass password). See section 1.4 for the location of JP4.

You cannot enter the BIOS utility if a Setup password does not exist and JP4 is set to 1-2 (password check enabled).

By default, JP4 is set to 2-3 (Bypass password).

2. Enable the Setup Password parameter in the System Security menu by pressing the ▭▭ or ▭▭ arrow key. The Setup Password window appears:

```
                      Setup Password

  Enter your new Setup Password twice.   Setup Password
  may be up to 7 characters long.

  Enter Password.................[xxxxxxx]
  Enter Password again............[xxxxxxx]

  Set or Change Password

```

3. Type a password in the Enter Password field. The password may consist of up to seven characters.

> *Be very careful when typing your password because the characters do not appear on the screen.*

4. Press ▭▭. Retype your password in the Enter Password again field to verify your first entry.

5. Highlight Set or Change Password and press ▭▭. The parameter will change to [Present].

6. Press ▭▭ to return to the System Security menu and then press ▭▭ again to exit Setup.

7. Press Yes to save your settings and exit the Setup Utility. Your password will be saved to CMOS.

For the password to take effect you must set jumper JP4 to 1-2 (Check password):

1.   Turn off and unplug the computer.

2. Open the computer housing and set JP4 to 1-2 (Check password) to check the password function. See section 1.4 for the location of JP4.

3. Close your computer   housing and reboot your system.

The next time you want to enter the BIOS utility, you must key in your Setup password.

To remove your Setup Password:

1. `Disable` the Setup Password parameter in the System Security menu by pressing the ▓▓▓ or `PGDN` arrow key to select `None`.

2. Press ▓▓▓ to return to the System Security menu and then press ▓▓▓ again to exit Setup.

3. Press `Yes` to save your settings and exit Setup Utility.   Your previous password will be removed from CMOS.

> *Remember to set JP4 to 2-3 (Bypass password) because you won   be able to access Setup Utility if a password does not exist and JP4 is set to 1-2 (Check password).*

To set JP4 to 2-3 (Bypass password):

1.   Turn off and unplug the computer.

2. Open the computer housing and set JP4 to 2-3 (Bypass password) to bypass the password function. See section 1.4 for the location of JP4.

3. Close your computer   housing and reboot your system.

To bypass Setup Password:

If you forget your setup password, you can bypass the password security feature by hardware. Follow these steps to bypass the password:

1. Turn off and unplug the computer.

2. Open the computer housing and set JP4 to 2-3 (Bypass password) to bypass the password function. See section 1.4 for the location of JP4.

3. Turn on the system and enter the BIOS utility. This time, the system does not require you to type in a password.

> *You can either change the existing Setup password or remove it by selecting None. Refer to the previous section for the procedure.*

2.8.2   Power-on Password

The Power-on Password secures your system against unauthorized use. Once you set this password, you have to type it whenever you boot the system. To set this password, enter the Setup Utility, select System Security, and then highlight the Power-on Password parameter. Follow the same procedure as in setting the Setup password.

> *Make sure to set JP4 to 1-2 to enable the Power-on password.*

```
                Power-on Password

   Enter your new Power-on Password twice.  Power-on
   Password may be up to 7 characters long.

   Enter Password..................[       ]
   Enter Password again............[       ]

   Set or Change Password



```

Operation Mode

This function lets you enable or disable the password prompt display. When set to Normal, the password prompt appears before system boot. When set to Keyboard Lock, the password prompt does not appear; however, your system will not respond to any keyboard or mouse input until you enter the correct password.

2.8.3   Disk Drive Control

The disk drive control features allow you to control the floppy drive or the hard disk drive boot function to prevent loading operating systems or other programs from a certain drive while the other drives are operational (under DOS mode only).

The table below lists the drive control settings and their corresponding functions.

Floppy Drive	
Setting	**Description**
Normal	Floppy drive functions normally
Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on the boot sector

Hard Disk Drive	
Setting	**Description**
Normal	Hard disk drive functions normally
Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on the boot sector

2.9   System Event Log

The system event log enables you to record and monitor events that
occurs in your system like system temperature, fan stops, and others.
This feature allows you to specify the appropriate settings for your
system   event handling. Selecting the option displays the following
screen:

```
                    System Event Log              Page 1/2

    System Event Logging

      Event Log BIOS Version............  x.x xxxxxx
      Total Event Log Number...........  x
      Remain of Event Log Area.........  xx%
      Event Logging....................  [Enabled]
      Clear Event Log..................  [Disabled]

    • View Event Logs

    Event Control
      Temperature/Voltage/Fan..........  [Enabled]
      ECC..............................  [Enabled]
      PCI..............................  [Enabled]
      I/O Check........................  [Enabled]



   ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```

System Event Logging

Allows you to record monitored events that occur during the operation
of your system.

EVENT LOG BIOS VERSION

This parameter specifies the version of the Event Log BIOS.

TOTAL EVENT LOG NUMBER

The number of events currently located in the event log area.

REMAIN OF EVENT LOG AREA

The percentage of space that is still available for logging system events.

EVENT LOGGING

This parameter allows you to enable or disable the event logging function of your system. The default is `Enabled`.

CLEAR EVENT LOG

Clears the event log whenever the event log area is full. The default is `Disabled`.

VIEW EVENT LOGS

Opens the system event log file for viewing.

```
          View Event Logs                Page 1/1

   No   Type                  Time              Status

   1    System Limit Exceeded  12:20 Oct 02,1998  Viewed
        2nd CPU Fan Bad

   2    System Limit Exceeded  13:54 Sep 29,1998  Viewed
        2nd CPU Fan Bad

   3    Log Area Reset/Cleared  13:54 Sep 29,1998  Viewed


   ESC = Back to Main Menu
```

Events Control

This parameter monitors the following events and logs them into the event log file if there is a change in status.

<u>**TEMPERATURE/VOLTAGE/FAN**</u>

Enable or disable the monitoring of the system temperature, volume, and CPU fan. The default is Enabled.

<u>**ECC**</u>

ECC or Error-Correcting Code tests the accuracy of data as it passes in and out of memory. This parameter enables or disables the monitoring of this function. The default is Enabled.

<u>**PCI**</u>

PCI or Peripheral Component Interconnect is a 32-bit bus that can run at clock speeds of 33 MHz. This parameter monitors the activity of this bus when set to enabled. The default is Enabled.

<u>**I/O CHECK**</u>

Monitors the ISA for uncorrectable errors. This parameter monitors the activity of this bus when set to enabled. The default is Enabled.

```
┌─────────────────────────────────────────────────────────────┐
│           System Event Log                    Page 2/2        │
├─────────────────────────────────────────────────────────────┤
│                                                               │
│   Critical Event Process                                      │
│     Stop POST After CPU or Memory Reduction .....[Disabled]   │
│     Halt System If No CPU or Memory Available ...[Enabled]    │
│                                                               │
│   Threshold Setting                                           │
│     CPU Warning Temperature ....................[ xx] °C      │
│     CPU Fatal Temperature ......................[ xx] °C      │
│     System Temperature .........................[ xx] °C      │
│     System Voltage .............................[ xx] %       │
│                                                               │
│                                                               │
│                                                               │
├─────────────────────────────────────────────────────────────┤
│  ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help    │
└─────────────────────────────────────────────────────────────┘
```

Critical Event Process

STOP POST AFTER CPU OR MEMORY REDUCTION

BIOS checks the bad CPUs and memory modules during POST. When this parameter is Enabled, BIOS will stop POST operation whenever it finds a bad CPU or memory. Otherwise, if Disabled the system will continue running.

HALT SYSTEM IF NO CPU OR MEMORY AVAILABLE

When Enabled, the system will stop working when the memory malfunctioned. Otherwise, if Disabled the system will continue running.

Threshold Setting

CPU WARNING TEMPERATURE

You can set a threshold for the CPU temperature level here and every time the CPU temperature exceeds this level a warning will be logged into the event log file. A typical warning degree threshold setting is 67°C.

CPU FATAL TEMPERATURE

When the CPU temperature reaches this threshold level a fatal warning will be logged into the event log file. A typical fatal degree threshold setting is 72°C.

SYSTEM TEMPERATURE

When the system temperature reaches this threshold level a warning will be logged into the event log file. A typical warning degree threshold setting is 49°C.

SYSTEM VOLTAGE

When the system voltage reading exceeds the safety operating range, it will be log into the event log file.

2.10   Advanced Options

The Advanced Options configuration menu allows you to configure the system memory, PCI device settings, and CPU frequency.

> *Do not change any settings in the Advanced Options if you are not a qualified technician to avoid damaging the system.*

The following screen shows the Advanced Options parameters:
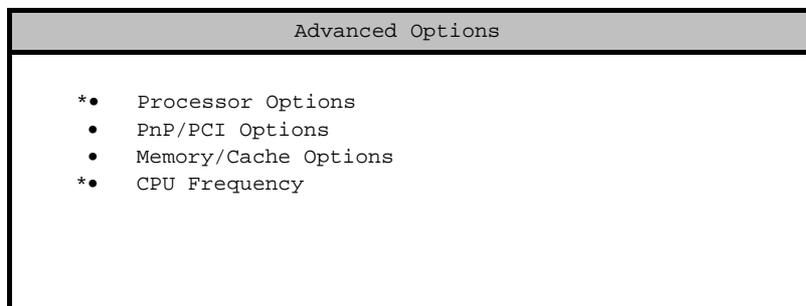
```
                    Advanced Options

   *●      Processor Options
    ●      PnP/PCI Options
    ●      Memory/Cache Options
   *●      CPU Frequency
```

> *The above parameter marked with '*' will only appear if you access the advanced level option in the Main Menu. Please refer to section 2.1 for more information.*

2.10.1   Processor Options (Pentium III only)

The Pentium III processor incorporates an individual serial number in each chip that can identify individual CPUs. When Enabled, CPUs can be identified by processor serial number. Disable this parameter to deactivate this feature.

2.10.2 PnP/PCI Options

The PnP/PCI Options allows you to specify the settings for your PCI devices. Selecting this option displays the following screen:

```
┌─────────────────────────────────────────────────────────────┐
│                      PnP/PCI Options                         │
│                                                              │
│   PCI IRQ Setting ........... [  Auto  ]                     │
│                               INTA    INTB    INTC    INTD   │
│     PCI Slot 1.............. [--]    [--]    [--]    [--]     │
│     PCI Slot 2.............. [--]    [--]    [--]    [--]     │
│     PCI Slot 3.............. [--]    [--]    [--]    [--]     │
│     PCI Slot 4.............. [--]    [--]    [--]    [--]     │
│     PCI Slot 5.............. [--]    [--]    [--]    [--]     │
│     PCI Slot 6.............. [--]    [--]    [--]    [--]     │
│   Onboard LAN.............. [--]                             │
│   Onboard SCSI............. [--]                             │
│   AGP..................... [--]                              │
│                                                              │
│   •   PCI Device Settings                                    │
│                                                              │
└─────────────────────────────────────────────────────────────┘
```

PCI IRQ Setting

Select Auto to let BIOS automatically configure the plug-and-play (PnP) devices installed on your system. Otherwise, select Manual.

Refer to your manual for technical information about the PCI card.

PCI SLOTS

When you set the PCI IRQ Setting parameter to Auto, these parameters specify the auto-assigned interrupt for each of the PCI devices. If you set the PCI IRQ Setting parameter to Manual, you need to specify the interrupt that you want to assign for each PCI device installed in your system.

ONBOARD LAN

When you set the PCI IRQ Setting parameter to Auto, this parameter specifies the auto-assigned interrupt for the onboard LAN. If you set the PCI IRQ Setting parameter to Manual, you need to specify the interrupt that you want to assign for the onboard LAN installed in your system.

ONBOARD SCSI

This item allows you to manually assign the interrupt for the onboard SCSI when the PCI IRQ Setting parameter is set to Manual. This parameter is grayed and not user-configurable when the PCI IRQ Setting is set to Auto.

AGP

This item shows the assigned interrupt for the onboard accelerated graphics port (AGP) controller.

PCI Device Settings

```
            PCI Device Settings

  PCI Device Latency Timer .....[E0]H Clocks

  PCI IRQ Sharing..............[Yes]
  VGA Palette Snoop ...........[Disabled]
  Graphics Aperture Size.......[64] MB
  Plug and Play OS.............[No ]
  Reset Resource Assignments...[No ]
```

PCI DEVICE LATENCY TIMER

This parameter allows you to set the length of time for a PCI device to use the PCI bus.

A PCI master can burst indefinitely as long as the target can source/sink the data, and no other agent requests for the bus. If another PCI device requests for the use of the PCI bus, a PCI bus arbitration takes place, and the tenure of the device currently using the PCI bus cannot go over the PCI latency time set in BIOS. This setting depends on your application. For example, if you install a high bandwidth block I/O card, e.g., FDDI, the longer the latency time the better. This setting only affects the primary PCI components (PCI slots 1, 2, 3, AGP slot, and onboard LAN). The secondary PCI components are always set to 20 PCI clocks.

PCI IRQ SHARING

Setting this parameter to Yes allows you to assign the same IRQ to two different devices. To disable the feature, select No.

> *If there are no IRQs available to assign for the remaining device function, we recommend that you enable this parameter.*

This parameter permits you to use the palette snooping feature if you installed more than one VGA card in the system.

The VGA palette snoop function allows the control palette register (CPR) to manage and update the VGA RAMDAC (Digital Analog Converter, a color data storage) of each VGA card installed in the system. The snooping process lets the CPR send a signal to all the VGA cards so that they can update their individual RAMDACs. The signal goes through the cards continuously until all RAMDAC data has been updated. This allows the display of multiple images on the screen.

> *Some VGA cards have required settings for this feature. Check your VGA card manual before setting this parameter.*

GRAPHICS APERTURE SIZE

This parameter determines the effective size of the graphics aperture. Graphics aperture is the address range that the AGP video and the CPU use to manage graphical objects. The lowest setting is 8 B and the highest is 256 B.

PLUG AND PLAY OS

When this parameter is set to Yes, BIOS initializes only PnP boot devices such as SCSI cards. When set to No, BIOS initializes all PnP boot and non-boot devices such as sound cards.

> *Set this parameter to Yes only if your operating system is Windows 95/98.*

Set this parameter to Yes to avoid IRQ conflict when installing non-PnP or PnP ISA cards. This clears all resource assignments and allows BIOS to reassign resources to all installed PnP devices the next time the system boots. After clearing the resource data, the parameter resets to No.

2.10.3 Memory/Cache Options

The Memory/Cache Options allows you to configure the advanced system memory functions.

```
                   Memory/Cache Options

  Internal Cache(CPU Cache)........... [Enabled ]
  External Cache...................... [Enabled ]
    Cache Scheme...................... Write Back

  Memory at 15MB-16MB Reserved for ... [System]
  Memory Mode......................... [ECC]

  Multi-Processor Spec. Version....... [V1.4]
  Single Processor MP Table........... [Enabled]
```

Internal Cache (CPU Cache)

This parameter enables or disables the first-level or internal memory, that is, the memory integrated into the CPU. The default setting is Enabled.

External Cache

This parameter enables or disables the external cache memory. The external cache is incorporated in the CPU module.

This parameter shows the cache scheme status only as `Write-back` mode. `Write-back` updates the cache but not the memory when there is a write instruction. It updates the memory only when there is an inconsistency between the cache and the memory.

Memory at 15MB-16MB Reserved for

To prevent memory address conflicts between the system and expansion boards, reserve this memory range for the use of either the system or an expansion board.

Memory Mode

This parameter allows you to enable or disable the ECC (Error Checking and Correction) feature. The ECC feature enables BIOS to detect and correct data errors. Disable this parameter if you want to disregard the function.

Multi-Processor Spec. Version

This parameter allows you to choose the version of the Multi-Processor Specifications. The default version is V1.4. You can also choose version V1.1.

Single Processor MP Table

Enabling this parameter allows BIOS to create a multiprocessor (MP) table for Multi-Processor OS (ex: Windows NT) use. In a single-processor system running Windows NT, you may disable this parameter to enhance system performance. If you install another CPU for a dual system, enable this parameter then re-install Windows NT.

In cases when this parameter is enabled before installing Windows NT in a single-processor system, you may upgrade to a multiprocessor system without reinstalling Windows NT.

2.10.4 CPU Frequency

This parameter displays your CPU speed and bus frequency. Selecting this option displays the following screen:

```
                     CPU Frequency
  Bus Frequency................ 100 MHz
  CPU Multiple................. [4]
  Processor Speed.............. xxx MHz



```

Bus Frequency

The bus frequency refers to the speed by which data is transferred between internal computer components and the CPU or the main memory of the CPU. A fast bus allows data to be transferred faster, which makes applications run faster.

CPU Multiple

This parameter sets the Core/bus ratio of your system. The clock speed of the bus does not necessarily equal the CPU (core). The bus clock speed is often slower than the CPU clock speed.

Processor Speed

The processor speed is the speed at which a microprocessor executes instructions. Clock speeds are expressed in megahertz (MHz), with 1 MHz being equal to 1 million cycles per second. The faster the clock, the more instructions the CPU can execute per second.

2.11   Load Default Settings

Use this option to load the default settings for the optimized system configuration. When you load the default settings, some of the parameters are grayed-out with their fixed settings. These grayed parameters are not user-configurable.

The following dialog box appears when you select Load Default Settings from the main menu:

```
┌─────────────────────────────────────────────────┐
│               Load Default Settings              │
├─────────────────────────────────────────────────┤
│        Do you want to load default settings?     │
│                                                  │
│               [Yes]          [No]                │
└─────────────────────────────────────────────────┘
```

Select Yes to load the default settings.

Select No to ignore the message and return to the BIOS utility.

2.12   Abort Settings Change

Use this option to disregard your changes to the BIOS and reload your previous settings.

The following dialog box appears when you select Abort Settings Change from the main menu:

```
┌─────────────────────────────────────────────────┐
│               Abort Settings Change              │
├─────────────────────────────────────────────────┤
│        Do you want to abort settings change?     │
│                                                  │
│               [Yes]          [No]                │
└─────────────────────────────────────────────────┘
```
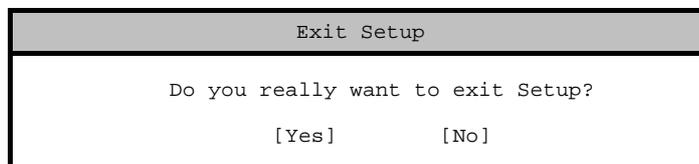
Select Yes to disregard your changes and reload your previous settings. After reload, the main menu appears on screen.

Select No to ignore the message and return to the BIOS utility.
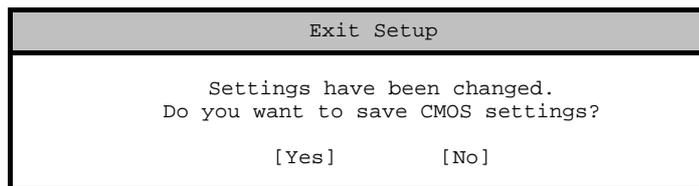
2.13   Exit Setup

Examine the system configuration values. When you are satisfied that all the values are correct, write them down. Store the recorded values in a safe place. In the future, if the battery loses power or the CMOS chip is damaged, you will know what values to enter when you rerun Setup.

Press ▬▬ to leave Setup Utility. The following dialog box appears:

```
┌─────────────────────────────────────────────────┐
│                   Exit Setup                     │
├─────────────────────────────────────────────────┤
│                                                  │
│        Do you really want to exit Setup?         │
│                                                  │
│            [Yes]            [No]                  │
│                                                  │
└─────────────────────────────────────────────────┘
```

Use the arrow keys to select your response. Press ▬▬.

If you made any changes to the Setup Utility, the dialog box below is displayed.

```
┌─────────────────────────────────────────────────┐
│                   Exit Setup                     │
├─────────────────────────────────────────────────┤
│                                                  │
│           Settings have been changed.            │
│        Do you want to save CMOS settings?        │
│                                                  │
│            [Yes]            [No]                  │
│                                                  │
└─────────────────────────────────────────────────┘
```

Use the arrow keys to select your response. Select Yes to save the changes in CMOS. Select No to retain the old configuration values. Press ▬▬ to exit.