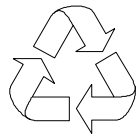


# M21A System

## User's Guide



100% Recycled Paper

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---

# IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions carefully. Save these instructions for future reference.
2. Follow all warnings and instructions marked on the product.
3. Do not use this product near water.
4. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
5. Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.
6. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
7. This product is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.
8. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.

- 
9. If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed 15 amperes.
  10. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
  11. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.
  12. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    - a. When the power cord or plug is damaged or frayed
    - b. If liquid has been spilled into the product
    - c. If the product has been exposed to rain or water
    - d. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.
    - e. If the product has been dropped or the cabinet has been damaged
    - f. If the product exhibits a distinct change in performance, indicating a need for service

- 
13. Replace the battery with the same type as the product's battery we recommend. Use of another battery may present a risk of fire or explosion. Refer battery replacement to a qualified serviceman.
  14. Warning! The battery could explode if not handled properly. Do not recharge, disassemble or dispose of it in fire. Keep it away from children and dispose of my used battery promptly.
  15. Use only the proper type of power supply cord set (provided in your keyboard/manual accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SVT/SJT, rated 6A 125V minimum, VDE approved or its equivalent. Maximum length is 15 feet (4.6 meters).

---

## CD-ROM Safety Warning

### **DANGER**

INVISIBLE RADIATION WHEN OPEN.  
AVOID EXPOSURE TO BEAM.

### **VORSICHT**

UNSICHTBARE LASERSTRAHLUNG WENN GEÖFFNET.  
NICHT IN DEN STRAHL SEHEN.

### **ATTENTION**

RADIATION DU FAISCEAU LASER INVISIBLE. EN CAS  
D'OUVERTURE. EVITER TOUTE EXPOSITION AUX RAYONS.

### **VARO**

AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE  
LASERSÄTEILYLLE ÄLÄ KATSO SÄTEESEEN.

### **VARNING!**

OSYNLING LASERSTRÄLNING NÄR DENNA DEL ÄR ÖPPNAD.  
BETRAKTA EJ STRÄLEN.

### **VARNING**

OSYNLING LASERSTRÄLNING NÄR DENNA DEL ÄR ÖPPNAD.  
STIRRA EJ IN I STRÄLEN.

### **ADVARSEL**

LASERSTRÄLING VED ÅBNING. SE IKKE IND I STRÄLEN.

CLASS 1 LASER PRODUCT  
APPAREIL A LASER DE CLASSE 1  
LASER KLASSE 1  
LOUKAN 1 LASERLAITE  
PRODUIT LASER  
CATEGORIE 1

---

## Caution on Lithium Batteries

### CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

### ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Léver det brugte batteri tilbage til leverandøren.

### ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri. Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten. Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

### WARNING

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

### VAROITUS

Päristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

### VORSICHT!

Explosionsgefahr bei unsachgemäßen Austausch der Batterie Ersatz nur durch denselben oder einem vom Hersteller empfohlenem ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

---

## **FCC Class B Radio Frequency Interference Statement**

**Note:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/television technician for help.

**Notice 1:**

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

**Notice 2:**

Shielded interface cables, if any, must be used in order to comply with the emission limits.



---

## About this Manual

### Purpose

This user's guide aims to give you the information you need to operate the system properly and tells you how to install internal components.

### Manual Structure

This user's guide consists of two chapters.

#### *Chapter 1 System Board*

This chapter describes the system board and all its major components. It contains the system board layout, jumper settings, cache and memory configurations, and information on other internal devices.

#### *Chapter 2 BIOS Utility*

This chapter gives information about the system BIOS and tells how to configure the system by changing the settings of the BIOS parameters.

---

## Conventions

The following conventions are used in this manual:

Text entered by user

, , , etc.



Represents text input by the user.

Represent the actual keys that you have to press on the keyboard.

### **NOTE**

Gives bits and pieces of additional information related to the current topic.

### **CAUTION**

Gives precautionary measures to avoid possible hardware or software problems.

### **IMPORTANT**

Reminds you to take specific actions relevant to the accomplishment of procedures.

---

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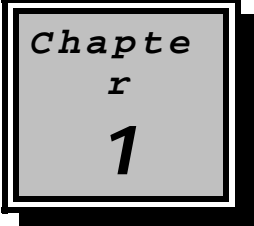
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A graphic consisting of a grey square with a black border, containing the text "Chapter 1" in a serif font. The square is set against a black rectangular background that has a slight drop shadow effect.

Chapter  
r  
1

## ***System Board***

---

### **1.1 Features**

The M21A is a dual-processor system board built on an extended ATX baseboard utilizing two Intel Pentium II Xeon processors running at 400/100 and 450/100 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 Xeon processor like its predecessor, the Pentium Pro and Pentium II processor, implements a Dynamic Execution micro-architecture - a unique combination of multiple branch prediction, data flow analysis, and speculative execution. This means that the Pentium II Xeon can deliver higher performance than the Pentium processor while maintaining binary compatibility with all previous Intel Architecture processors.

Also, the Pentium II Xeon processor is available in 512K, 1MB, and 2MB L2 cache options with the introduction of the Slot 2 socket. Unlike Slot 1 Pentium IIs, which access the L2 at half the processor speed, the Slot 2 access the L2 at full processor clock speed.

The PCI/AGP controller host bus interface supports a Pentium II Xeon processor 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 supports two optional features, ASM Pro and Remote Diagnostic Management (RDM), that allow better server management. The ASM Pro detects problems in CPU thermal condition, CPU working voltage detection ( $\pm 12V/\pm 5V/3.3V/1.5V$ ), and PCI bus utilization calculation. It also detects if the CPU fan or the chassis fan malfunctions. RDM allows execution of the RDM diagnostic program from a remote RDM station to fix detected problems or to reboot the system.

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

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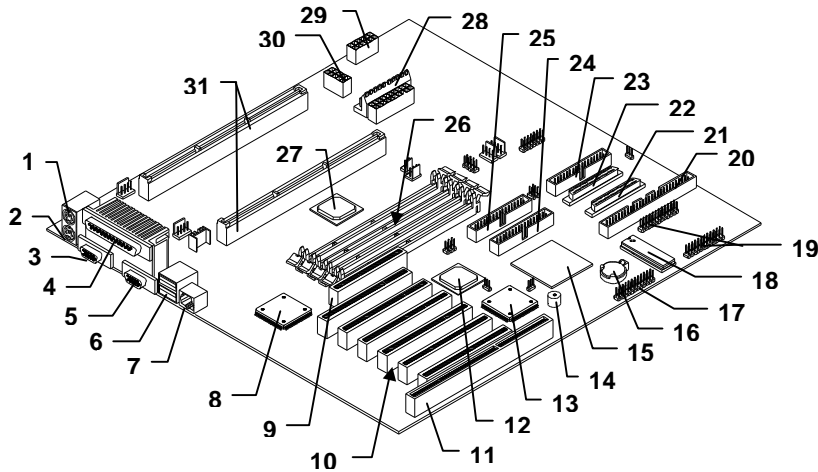
## 1.2 Major Components

The system board has the following major components:

- Supports dual Intel Pentium II Xeon processors running at 400 or 450 MHz with integrated 512K, 1MB or 2MB L2 write-back cache
- 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)
- Two 24-pin RDM interfaces
- IDE hard disk and diskette drive interfaces
- Auxiliary power connector for 280W SPS and ATX power supply
- Super I/O, SCSI, memory, Advanced Server Management (ASM) and LAN Desk Client Management (LDCM) controller chipsets
- External ports:
  - USB connector
  - PS/2-compatible keyboard port
  - RJ-45 jack
  - PS/2-compatible mouse port
  - Parallel port
  - Serial port 1 and 2

## 1.3 Layout

Figure 1-1 shows the system board components.



- |    |                                       |    |  |
|----|---------------------------------------|----|--|
| 1  | Mouse port                            | 18 | System BIOS  |
| 2  | Keyboard port                         | 19 | RDM connectors                                       |
| 3  | Serial port 2                         | 20 | Channel A fast/narrow SCSI connector (50 pin)        |
| 4  | Parallel port                         | 21 | Channel A Ultra-wide/Ultra-2 SCSI connector (68 pin) |
| 5  | Serial port 1                         | 22 | Channel B Ultra-wide/Ultra-2 SCSI connector (68 pin) |
| 6  | USB connector                         | 23 | FDD connector  |
| 7  | RJ-45                                 | 24 | EIDE connector 2 (secondary)                         |
| 8  | LAN controller                        | 25 | EIDE connector 1 (primary)                           |
| 9  | AGP slot                              | 26 | DIMM sockets   |
| 10 | PCI slots                             | 27 | Intel 443GX system controller                        |
| 11 | ISA slot                              | 28 | Power connector 1                                    |
| 12 | Intel 82371EB PIIX4E (PCI-ISA bridge) | 29 | Power connector 2                                    |
| 13 | DEC 21152 (PCI-PCI bridge)            | 30 | Power connector 3                                    |
| 14 | Buzzer                                | 31 | Slot 2 CPU sockets                                   |
| 15 | SCSI controller                       |    |  |
| 16 | Battery                               |    |  |
| 17 | Feature Connector (Intel SMM Card)    |    |  |

Figure 1-1 System Board Layout

## 1.4 Jumpers and Connectors

### 1.4.1 Jumper and Connector Locations

Figure 1-2 shows the jumper and connector locations on the system board.

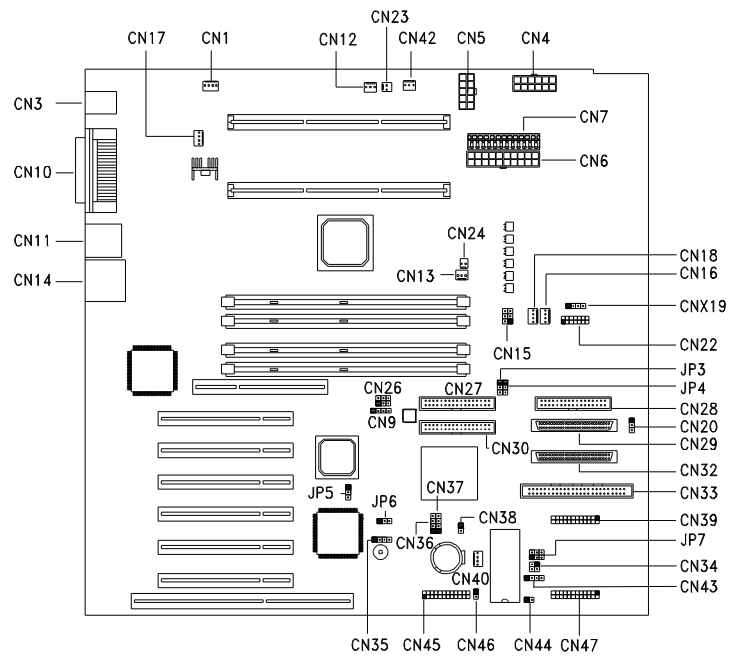


Figure 1-2 System Board Jumper and Connector Locations



Jumpers are prefixed "JP". Connectors are prefixed "CN". The blackened pin of a jumper or connector represents pin 1.

---

## 1.4.2 Jumper Settings

Table 1-1 lists the system board jumpers with their corresponding settings and functions.

Table 1-1 System Board Jumper Settings

Jumper	Setting	Function
BIOS Logo JP3	1-2* 2-3	Acer 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 Speaker
AlertPack Select JP7	1-2/4-5 2-3/5- 6*	AlertPack and LM80 LM80 Only

---

\* Default

---

### 1.4.3 Connector Functions

Table 1-2 lists the different connectors on the system board and their respective functions.

*Table 1-2 Connector Functions*

<b>Connector</b>	<b>Function</b>
CN1	Cabinet Fan Connector
CN3	Mouse and Keyboard Ports
CN4	280W Power Supply Connector-2
CN5	280W Power Supply Connector-3
CN6	ATX Power Connector
CN7	280W Power Supply Connector-1
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 B Connector
CN30	Secondary IDE Connector

---

*Table 1-2 Connector Functions*

<b>Connector</b>	<b>Function</b>
CN32	SCSI Channel A Wide Connector
CN33	SCSI Channel A Narrow Connector
CN34	RDM LED Connector
CN35	External Speaker Connector
CN36	Hard Disk LED Connector
CN37	Hard Disk LED Connector
CN38	Power Switch Connector
CN39/47	RDM/ASM Module Connector
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

---

## 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.*



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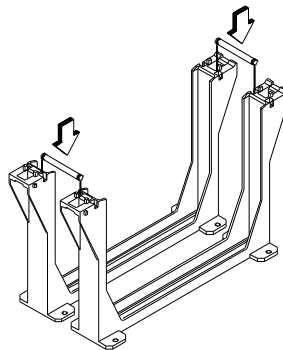
## 1.6 Installing and Removing the Pentium II Xeon Processor

Intel's Pentium II Xeon CPU is a Slot 2 processor that uses a 330-pin single edge connector which is a bit longer than a Slot 1 processor. Other than the size the major improvement of the Slot 2 processor is at the L2 cache. Pentium II Xeon processors access the L2 cache at full clock speed, 400 MHz or 450 MHz, whereas a Slot 1 processor access the L2 at only half the CPU's clock speed. This significantly boost performance and speed.

### 1.6.1 Installing the Retention Mechanism

Follow these steps to install the retention mechanism:

1. Attach both the retention mechanism with the joint bar. Snap-in the joint bar on both sides of the retention mechanism.



*Figure 1-3 Inserting the joint bar on the Retention Mechanism*

2. Insert both the retention mechanism into the Slot 2 sockets. Make sure that the shafts of the retention mechanism with a O sign is facing the external ports of the system board.

- 
3. Align the metal brace beneath the system board along the Slot 2 retention holes and secure the retention mechanism with six screws (see figure below). Install the last two screws when fitting the system board to the housing.

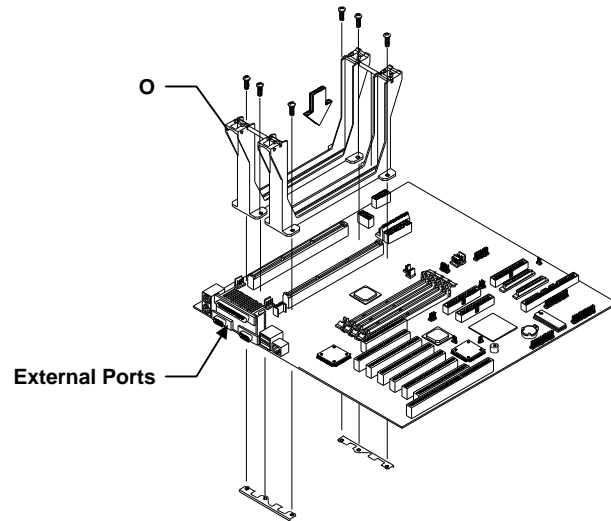


Figure 1-4 *Installing the Retention Mechanism*

---

## 1.6.2 Installing an Intel Pentium II Xeon processor

Follow these steps to install a Pentium II Xeon processor:

1. Attach the fansink module to the Pentium II Xeon processor and secure it with four screws.

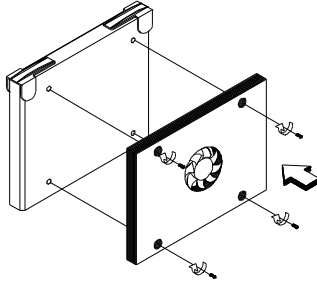


Figure 1-5 Installing the Fansink

2. Insert the Pentium II Xeon processor into an empty Slot 2 socket.

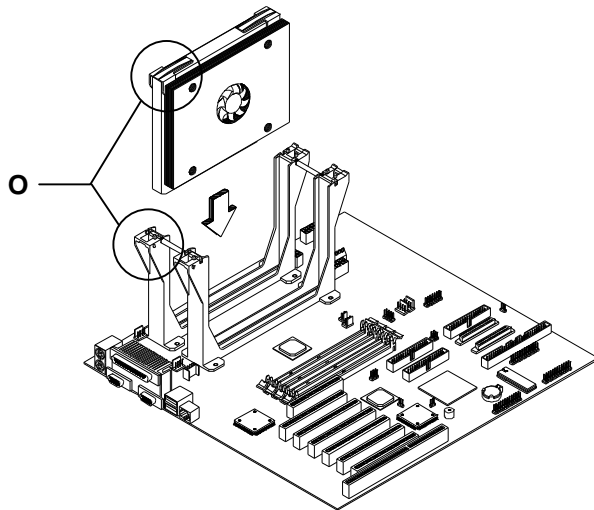
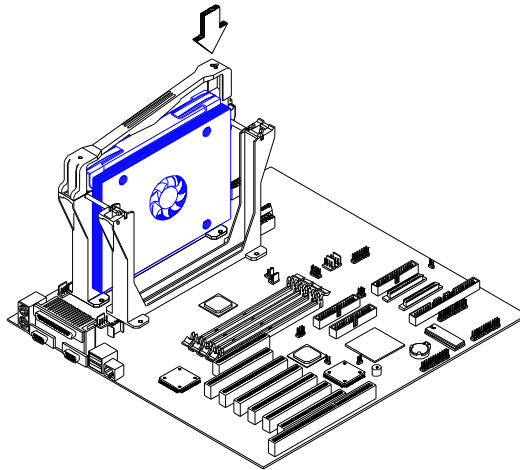


Figure 1-6 Installing a Pentium II Xeon Processor

- 
- Carefully press down the Pentium II Xeon processor until it is properly inserted into the socket.
  - Use the retention mechanism cover to secure the processor by pressing it down until it locks with the retention mechanism as shown below.



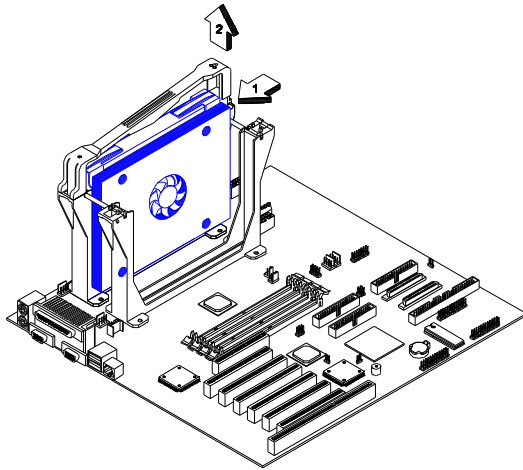
*Figure 1-7 Installing Retention Mechanism Cover*

The retention mechanism cover only fits one way. Both shafts of the retention mechanism and the retention mechanism cover have a O and a OO sign. Match the O on the cover with the O on the retention mechanism first, then hooked them together and then insert the OO side to the retention mechanism and make sure they are clipped.

### **1.6.3 Removing an Intel Pentium II Xeon processor**

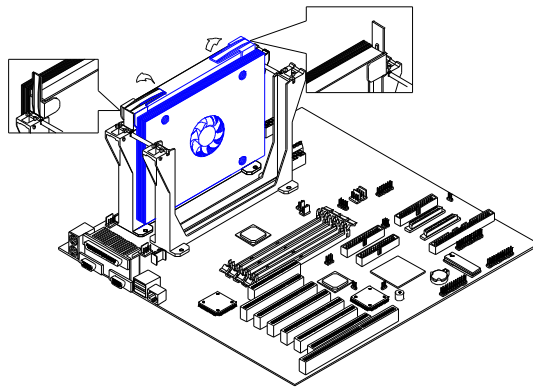
Follow these steps to remove a Pentium II Xeon processor:

- 
1. Unclip the retention mechanism cover.



*Figure 1-8 Removing the Retention Mechanism Cover*

2. Flip up both the plastic ear of the Pentium II Xeon processor.  
This procedure detaches the processor from the socket.



*Figure 1-9 Removing the Pentium II Xeon Processor*

- 
- Carefully lift up and remove the Pentium II Xeon processor.

#### 1.6.4 Installing and Removing the Terminator Board

When you are not using all the Slot 2 sockets, you must install a terminator board into each empty slot.

##### To install the terminator board:

- Position the terminator board over the empty slot.
- Carefully insert the golden fingers of the terminator board into the slot until the board fits completely.

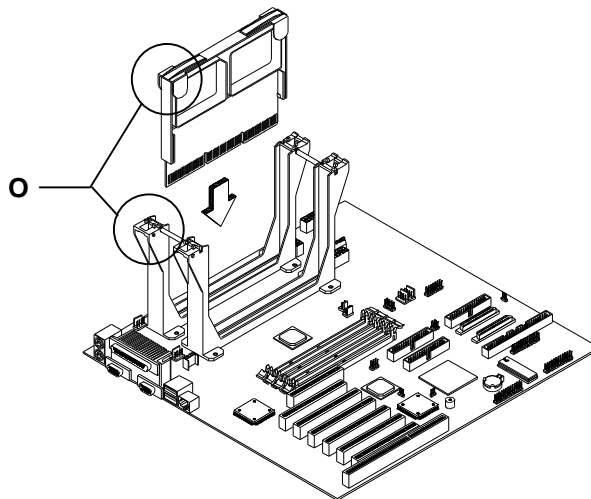


Figure 1-10 Installing a Terminator Board

- Use the retention mechanism cover to secure the processor by pressing it down until it locks with the retention mechanism. See figure 1-6 for the illustration.

---

The retention mechanism cover only fits one way. Both shafts of the retention mechanism and the retention mechanism cover have a o and a oo indicator. Match the O on the cover with the O on the retention mechanism first, then hooked them together and then insert the OO side to the retention mechanism and make sure they are clipped.

**To remove the terminator board:**

1. Unclip the retention mechanism cover.
2. Flip up both the plastic ear of the terminator board. This procedure detaches the terminator board from the socket.
3. Lift up and remove the terminator board.

Refer to section 1.6.3 for the illustrations.

---

## 1.8 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. M21A 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.

### 1.8.1 Memory Configurations

Table 1-3 lists some system memory configurations. You may combine DIMMs with various capacities to form other combinations.

*Table 1-3 Memory Configurations*

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



Table 1-3 Memory Configurations

DIMM1	DIMM2	DIMM3	DIMM4	Total Memory
128 MB				128 MB
128 MB	128 MB			256 MB
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

### 1.8.2 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.*

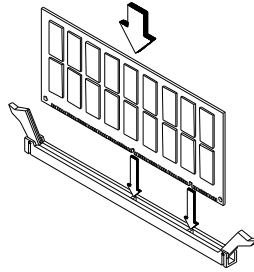


Figure 1-11 Installing a DIMM

### 1.8.3 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.*

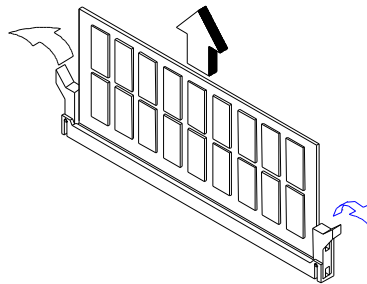


Figure 1-12 Removing a DIMM

---

## 1.8.4 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 **CTRL** + **ALT** + **ESC**.
3. Press **ESC** twice to exit Setup and reboot the system. The system boots with the new memory configuration.

---

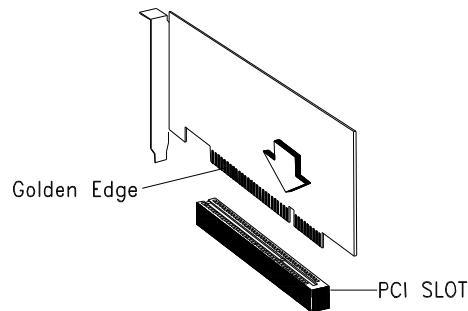
## 1.9 Installing Expansion Cards

### 1.9.1 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.



*Figure 1-13 Installing a PCI Card*

### 1.9.2 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.

---

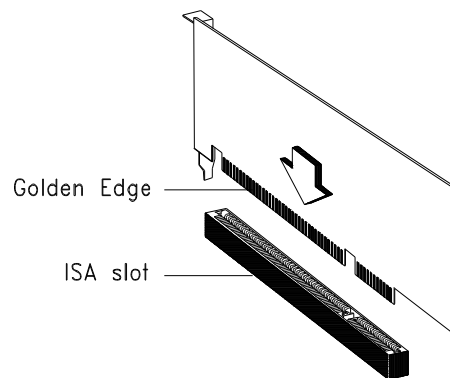
Follow these steps when installing ISA cards:

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.



*Figure 1-14 Installing an ISA Card*

---

### 1.9.3 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.

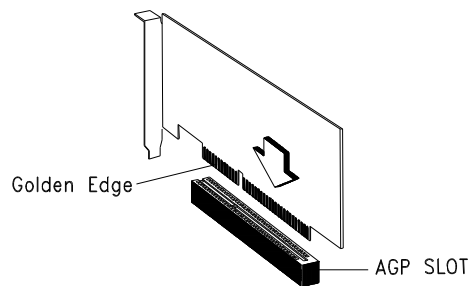


Figure 1-15 Installing an AGP Card

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



*BIOS detects and configures only PnP cards.*

---

## **1.10 ASM Pro**

ASM Pro is a server management tool based on the Simple Network Management Protocol (SNMP). It detects server problems related to the CPU thermal condition, 5V/3.3V/1.5V detection, or PCI bus utilization calculation.

This feature is designed primarily for server supervisors and management information system (MIS) personnel to help them detect errors or potential trouble spots in their network servers through a single management station.

ASM Pro consists of two major parts:

- ASM-Station - a Windows-based monitoring station that communicates with the ASM-Agents.
- ASM-Agent(s) - the individual servers managed by the ASM-Station.

Refer to the ASM Pro user's manual for more information.

---

## 1.11 Remote Diagnostic Management

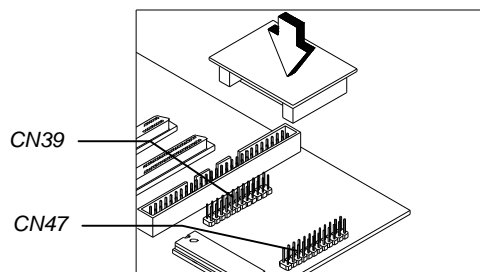
Remote Diagnostic Management (RDM) is a network management tool that utilizes modems and telephone lines to control a host of servers from a remote station. It monitors and analyzes the server condition, updates the BIOS settings if necessary, or reboots the server in the event of failure and quickly returns it to normal operation. This capability to execute the RDM program from a remote site bridges the distance barrier in fixing server problems and reduces wasted time due to system failure.

### 1.11.1 Installing the RDM Module

The system board comes with connectors CN39 and CN47 to accommodate the RDM module.

Follow these steps to install the RDM module and connect the cable:

1. See Figure 1-1 for the location of the RDM connectors.
2. Gently insert the RDM module into CN39 and CN47. The module fits only in one direction. Do not force it into the connectors.



*Figure 1-16 Installing the RDM Module*

Refer to the RDM User's Guide for detailed instructions on RDM installation.



---

## 1.12 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

### 1.12.1 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.

### 1.12.2 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.

Table 1-4 lists possible system error messages.

*Table 1-4 System Error Messages*

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

*Table 1-4 System Error Messages*

<b>Message</b>	<b>Action</b>
Diskette Drive Controller Error or Not Installed Floppy Disk Controller Error	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 Floppy Drive A Error	Run Setup and select the proper drive type.
Diskette Drive B Type Mismatch Floppy Drive B Error	Run Setup and select the proper drive type.
ECC Facility Fail	Contact your dealer.
Equipment Configuration Error	Modify DRAM configuration to agree with one of the options in Table 1-3.
Expansion ROM Allocation Failed	Contact your dealer.
Hard Disk Controller Error	Run Setup.
Hard Disk 0 Error IDE Primary Channel Master Drive Error	Check all cable connections. Replace hard disk.
IDE Primary Channel Slave Drive Error	Check all cable connections. Replace hard disk.
Hard Disk 1 Error IDE Secondary Channel Master Drive Error	Check all cable connections. Replace hard disk.
IDE Secondary Channel Slave Drive Error	Check all cable connections. Replace hard disk.
Hard Disk 0 Extended Type Error	Run Setup.
Hard Disk 1 Extended Type Error	Run Setup.

**Table 1-4 System Error Messages**

<b>Message</b>	<b>Action</b>
IRQ Setting Error	Run Setup.
I/O Parity Error	Contact your dealer.
I/O Resource Conflict(s)	Check ISA add-on card, serial port, and parallel port.
I2C Interface or Device(s) Error, System Halt	Shutdown and disconnect the power cable or contact your dealer.
PS/2 Keyboard Error or No Keyboard Not Connected	Check and connect the keyboard to the system unit.
PS/2 Keyboard Interface Error	Replace the keyboard or contact your dealer.
PS/2 Pointing Device Error	Check and connect pointing device.
PS/2 Pointing Device Interface Error	Run Setup and disable pointing device.
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.
Memory Resource Conflict(s)	Check ISA add-on card.
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.
NVRAM Checksum Error	Contact your dealer.

*Table 1-4 System Error Messages*

<b>Message</b>	<b>Action</b>
Onboard Pointing Device IRQ Conflict(s)	Run Setup and disable pointing device.
Onboard Pointing Device Interface Error	Replace the pointing device or contact your dealer.
Press F1 key to continue or Ctrl-Alt-Esc for Setup	Press <b>F1</b> or <b>CTRL</b> + <b>ALT</b> + <b>ESC</b> to enter Setup.
Real Time Clock Error	Run Setup and set the time and date.
RAM Parity Error	Contact your dealer.
64K System Management Memory Bad	Contact your dealer.
SMRAM Not Exist	Contact your dealer.
Press Esc to turn off NMI, any key to reboot	Press <b>ESC</b> to disregard the NMI error. Press any other key to reboot the system.

---

### 1.12.3 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 combination **CTRL+ALT+ESC**.



*You must press **CTRL+ALT+ESC** 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
- Remote Diagnostic Manager

Load Default Settings  
Abort Settings Change

The system supports two BIOS Utility levels: Basic and Advanced. The above screen is the BIOS Utility Basic Level screen. This allows you to view and change only the basic configuration of your system.

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 screen shows the BIOS Utility Advanced Level main menu.

---

## Setup Utility

- System Information
- Product Information
- Disk Drives
- Onboard Peripherals
- Power Management
- Boot Options
- Date and Time
- System Security
- System Event Log
- Remote Diagnostic Manager
- \* • Advanced Options





Load Default Settings  
Abort Settings Change






*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 , , , and  to move around the Setup Utility screen.

Use  to move to the next page or  to return to the previous page if the setup screen has more than one page available.

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 1 ..... Pentium® II Xeon™
Processor 2 ..... Pentium® II Xeon™
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 1 and 2

The Processor parameter specifies the type of processor currently installed in your system. The system supports Intel Pentium® II Xeon™ 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 256 KB to 2 MB.

---

### **2.2.5 Diskette Drive A**

This parameter specifies the system's current diskette drive A settings. For information on how to configure the floppy drives, see section 2.4.1.

### **2.2.6 Diskette Drive B**

This parameter specifies the system's current diskette drive B settings. For information on how to configure the floppy drives, see section 2.4.1.

### **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. For information on how to configure the IDE drives, see section 2.4.3.

### **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. For information on how to configure the IDE drives, see section 2.4.3.

### **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. For information on how to configure the IDE drives, see section 2.4.3.

### **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. For information on how to configure the IDE drives, see section 2.4.3.

---

### **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 Figure 1-1.

### **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 figure shows how the Product Information screen appears:

```
Product Information
Product Name ..... xxxxxxxxxx
System S/N ..... xxxxxxxxxx
Main Board ID ..... M21A
Main Board S/N ..... xxxxxxxxxx
System BIOS Version ..... v3.1
SMBIOS Version ..... 2.1
```

### 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's serial number.

### 2.3.3 Main Board ID

This parameter specifies the system board's identification number.

---

### **2.3.4 Main Board S/N**

This parameter specifies the system board's 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.

---

## 2.4 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 ]
<ul style="list-style-type: none"><li>• IDE Primary Channel Master</li><li>• IDE Primary Channel Slave</li><li>• IDE Secondary Channel Master</li><li>• IDE Secondary Channel Slave</li></ul>	

### 2.4.1 Floppy Drives

To enter the configuration value for the first floppy drive (drive A), 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 B. 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 ]
*CD-ROM Drive DMA Mode.....	[ Disabled ]



*The above parameters marked with '\*' will only appear if you access the Advanced Options level 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**

### **HARD DISK SIZE > 504 MB**

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 MB. 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*.

### **HARD DISK BLOCK MODE**

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*.

### **ADVANCED PIO MODE**

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*.

### **HARD DISK 32-BIT ACCESS**

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.

#### **CD-ROM DRIVE DMA MODE**

Set this parameter to `Enabled` to enable the DMA mode for the CD-ROM drive. This improves the system performance since it allows direct memory access to the CD-ROM. To deactivate the function, set the parameter to `Disabled`.

---

## 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. Table 2-1 lists the different operation modes.

Table 2-1 *Parallel Port Operation Mode Settings*

Setting	Function
Standard Parallel Port (SPP)	Allows normal speed one-way operation
Standard and 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 CapabilitiesPort (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.



---

### **USB LEGACY MODE**

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 parameter allows you to enable or disable the alert on LAN feature.

---

## 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]
*ACPI BIOS Support .....[Enabled]

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



*The above parameters marked with “\*” will only appear if you access the Advanced Options level in the Main Menu. Please refer to section 2.1 for more information.*

### 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.

#### **SLEEP MODE**

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 ACPI BIOS

ACPI (Advanced Configuration and Power Interface) feature enables the operating system to monitor and control the amount of power supplied to each device attached to the system. When enabled, ACPI uses the OS (Operating System) to turn off the peripheral devices (such as a CD-ROM) that are not in use. The default setting is **Enabled**.

### 2.6.4 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**.

---

## 2.7 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 .....[ IDE]

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 Options level in the Main Menu. Please refer to section 2.1 for more information.*

### 2.7.1 Boot Sequence

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

- 1<sup>st</sup>. The system checks this drive first.

- 
- 2<sup>nd</sup>. The system then checks this drive if it can not boot from the 1<sup>st</sup> specified drive.
  - 3<sup>rd</sup>. If the 1<sup>st</sup> and 2<sup>nd</sup> searches fail then it boots from this drive.
  - 4<sup>th</sup>. If the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> searches fail then it boots from this drive.

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

### 2.7.2 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 `IDE`.

### 2.7.3 Fast Boot

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

### 2.7.4 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 `[F9]` when you see the "Ctrl-Alt-Esc key to enter setup" 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.

---

### **2.7.5 Num Lock After Boot**

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

### **2.7.6 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*.

### **2.7.7 Release All Blocked Memory**

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

### **2.7.8 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.

### **2.7.9 Boot from LANDesk Service Agent**

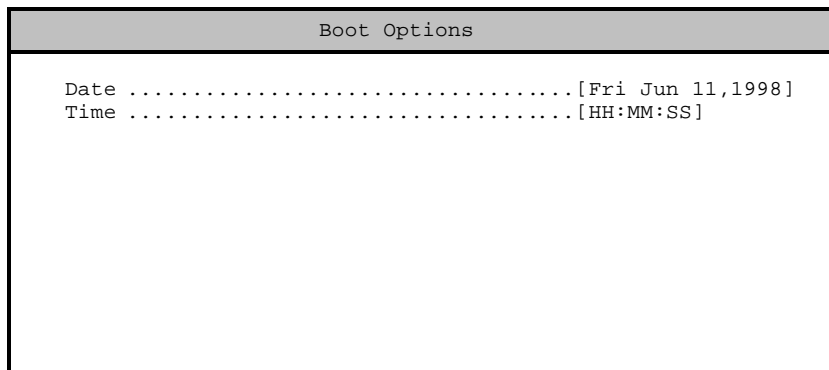
When set to *Enabled*, the system boots from a LANDesk Service Agent network instead of your desktop system. The LANDesk Service Agent is IEEE-standards-based code that intervenes in the boot process. Please refer to your LANDesk Manual for more information.

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



---

## 2.8 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.



### 2.8.1 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 1 to 12
- Day 1 to 31
- Year 1980 to 2099



---

## 2.8.2 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

---

## 2.9 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]

### 2.9.1 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 figure 1-2 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 .
6. Press  to return to the System Security menu and then press  again to exit Setup. The Exit Setup screen appears:

Exit Setup
Settings have been changed. Do you want to save to CMOS settings? [Yes] [No]

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

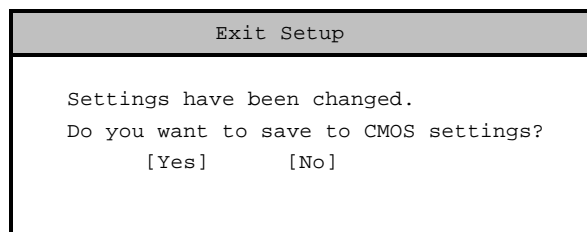
For the password to take effect you must set jumper JP4 to 1-2 (Check password):

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 figure 1-2 for the location of JP4.
3. Close your computer's 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 **→** arrow key to select **None**.
2. Press **ESC** to return to the System Security menu and then press **ESC** again to exit Setup. The Exit Setup screen appears:



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't 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 figure 1-2 for the location of JP4.
3. Close your computer's 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 figure 1-2 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.*

---

## 2.9.2 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.

---

### 2.9.3 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).

Table 2-2 lists the drive control settings and their corresponding functions.

Table 2-2 *Drive Control Settings*

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

---

## 2.10 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's 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 2 <sup>nd</sup> CPU Fan Bad	12:20 Oct 02,1998	Viewed	
2	System Limit Exceeded 2 <sup>nd</sup> CPU Fan Bad	13:54 Sep 29,1998	Viewed	
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.

### TEMPERATURE/VOLTAGE/FAN

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

### ECC

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*.

### PCI

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*.

### I/O CHECK

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's temperature level here and every time the CPU's 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's 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's 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's voltage reading exceeds the safety operating range, it will be log into the event log file.

---

## **2.11 Remote Diagnostic Manager**

The Remote Diagnostic Manager parameter allows you to configure your RDM settings. Refer to the RDM User's Guide for more information on RDM.

---

## 2.12 Advanced Options



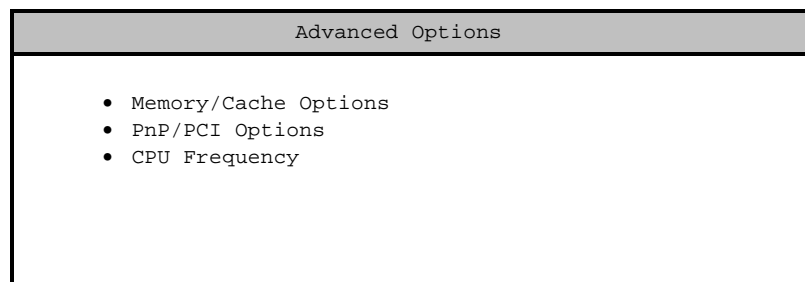
*Advanced Option configuration is available only in the Advanced Level.*

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:



### 2.12.1 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 Parity Mode .....	[ECC]
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.

#### CACHE SCHEME

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 Parity 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.

### **Single Processor MP Table**

Enabling this parameter allows BIOS to create a multiprocessor (MP) table for 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.



---

## 2.12.2 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.*

---

### **VGA PALETTE SNOOP**

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 MB and the highest is 256 MB.

### **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.*

---

### **RESET RESOURCE ASSIGNMENTS**

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*.

### **2.12.3 CPU Frequency**

This parameter displays your CPU's 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's (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.

---

## 2.13 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.

## 2.14 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.

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## 2.15 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 **[ESC]** 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 **[ENTER]**.

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 **[ENTER]** to exit.