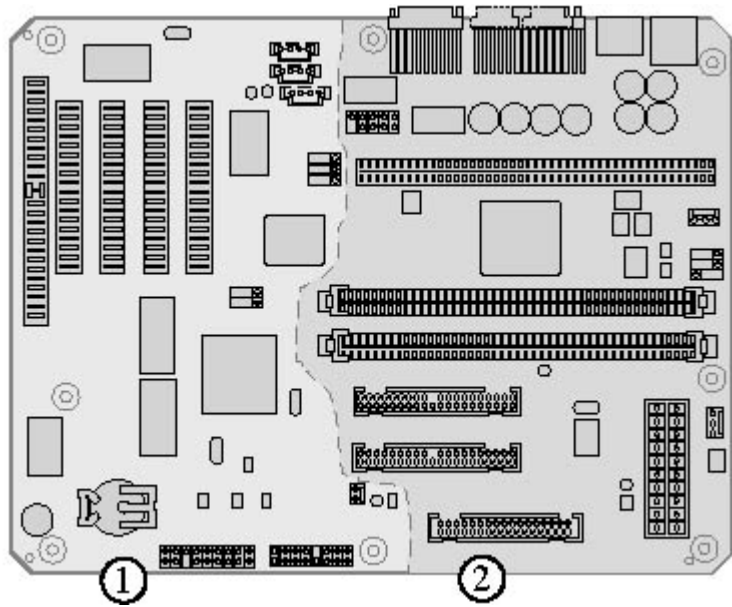


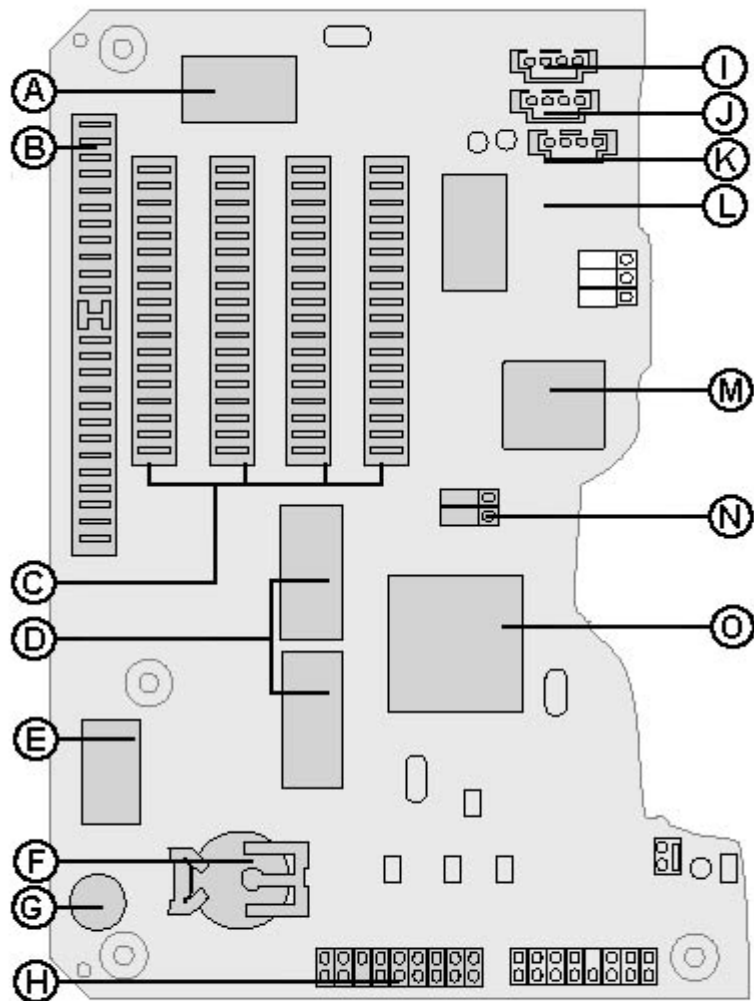
Pentium II Integrated LX System Board

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The System Board Connectors

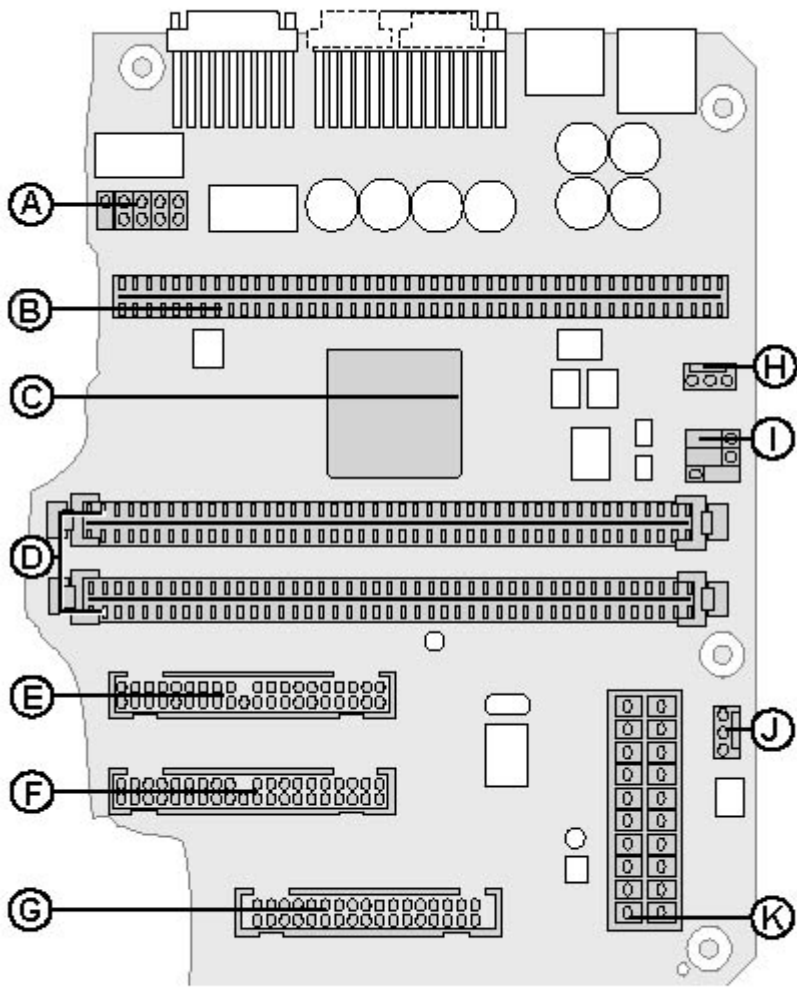


Section 1



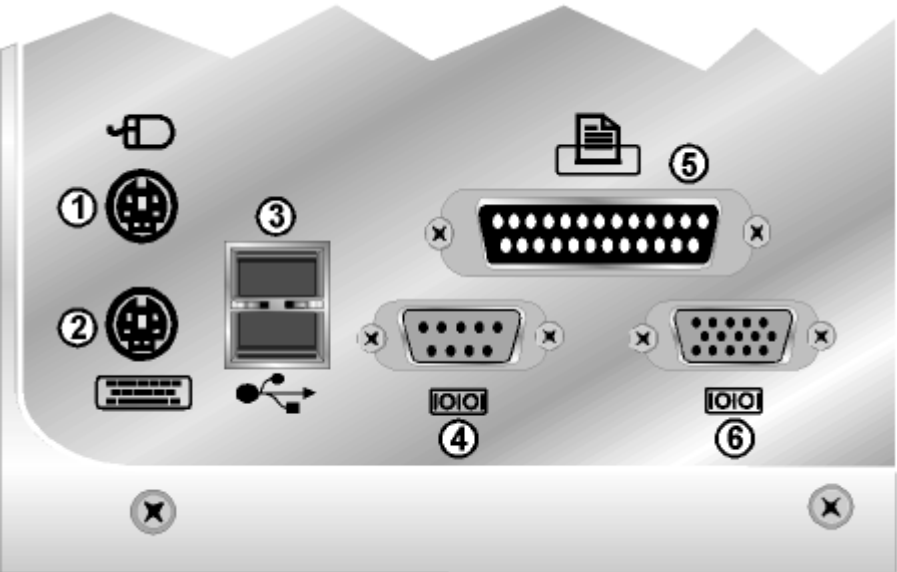
- A. Ensoniq 1371 audio controller
- B. ISA slot
- C. PCI slots
- D. Video memory
- E. BIOS flash memory
- F. Battery
- G. Speaker
- H. Front panel connector
- I. ATAPI telephone answering device (modem)
- J. ATAPI TV out
- K. ATAPI CD
- L. Super I/O controller
- M. PIIX4e
- N. J24 jumper, clear NVRAM/CMOS password
- O. M2 video/graphics accelerator

Section 2



- A. COM2 port
- B. Processor connector (Slot 1)
- C. 443 LX PAC
- D. DIMM slots
- E. Secondary IDE connector
- F. Primary IDE connector
- G. Floppy connector
- H. Auxiliary fan
- I. Processor speed jumpers
- J. Power supply fan control
- K. ATX power connector

Back panel I/O connectors



- A. PS/2 mouse port
- B. Stacked USB (two) port
- C. LPT printer port
- D. Joystick/MIDI port
- E. Keyboard port
- F. Com A port
- G. Monitor port
- H. Speaker line (out) port
- I. Line (in) port
- J. Microphone port

System Board Features

Expansion slots and cards

The system board has the following expansion card slots:

- One ISA bus expansion slot

- Four PCI expansion slots

Although there are five expansion slots, there is only enough room on the system board for four expansion cards. On this system board, a PCI card slot and an ISA card slot are located next to each other. They share an opening on the back of the computer case and, consequently, only one of these expansion slots can be used.

Battery

This external coin-style lithium battery (2032 style) supplies power to the integrated Real Time Clock (RTC) and CMOS memory. The battery has an estimated lifetime of three years and is easily replaced. When the computer is on, power is provided by the power supply to extend the life of the battery.

DIMM sockets

The Dual Inline Memory Module (DIMM) socket, or *bank*, is a system board connection that holds one DIMM component. Two banks are available on the system board.

You can fill one or both banks with DIMM components in any combination of 8, 16, 32, 64, and 128MB DIMMs, totalling 256MB of Synchronous Dynamic Random Access Memory (SDRAM), using 64Mbit-based DRAM. See "Installing memory" for more information.

Power connectors

This single-unit connector supplies power to the system board components and cooling fan. It is keyed to fit only one way.

Fan connector

The power supply fan connector lets the system software control the fan, turning it on or off as needed. The fan connector is continuously supplied power and is intended to be used for processor heat sinks with fans. The system does not control the power to connectors.

Input/Output (I/O) connectors

The keyboard, mouse, parallel port, USB, COM A, VGA, game and audio connectors are stacked on this system board.

PAC controller (PCI/AGP)

The PAC controller provides the bus control signals, address paths, and data paths for the processor's host bus, PCI bus, AGP bus, and main memory. The PAC is a 492-pin Ball Grid Array (BGA) package located underneath the processor heat sink.

Super I/O controller

This component is ISA Plug & Play-compatible, providing control for the integrated serial ports, parallel port, diskette drive, and keyboard/mouse controller.

The controller provides:

- Two NS16C550-compatible UARTs with internal send/receive 16-byte FIFO
- Multi-mode bidirectional parallel port in standard, enhanced, and high-speed extended capabilities modes
- Industry standard diskette controller with 16-byte data FIFO, PC-AT and PS/2 drive mode support, and high performance Digital Data Separator (DDS) for one diskette drive
- Integrated 8042-compatible controller, general purpose microcontroller, and 8-bit internal data bus

Intel 82371EB PCIset (PIIX4e)

This component provides the interface between the PCI and ISA buses and the following hardware control:

- USB
- Ultra ATA
- Enhanced DMA
- Interrupt controller
- Power management
- Real-time clock

The PIIX4e also provides power management and RTC logic for the computer. The PIIX4e is a 324-pin BGA package.

Flash ROM

This component serves as the storage area for the following items:

- The BIOS

- The BIOS Setup utility
- The Power-On Self Test (POST)
- The Update recovery code
- The PCI auto-configuration utility

IDE Support

This system board has two independent high-performance bus mastering PCI IDE interfaces capable of supporting PIO Mode 4 and Ultra ATA devices.

This system BIOS supports Logical Block Addressing (LBA) and Extended Cylinder Head (ECHS) translation modes as well as ATAPI (for example, CD-ROM) devices on both IDE interfaces. The system BIOS automatically detects the IDE device transfer rate and the translation mode capability.

Audio Subsystem

The Audio Code '97 (AC '97) audio subsystem provides the most enhanced audio experience to date. The AC '97 Audio subsystem contains the following features:

- Power management support
- Direct access to system memory
- 18-bit stereo full-duplex codec with 48K fixed sampling rate
- Improved signal-to-noise ratio
- Audio inputs:
 - Three analog, line-level, stereo inputs for connection from line in, CD, and auxiliary
 - Two analog, line-level, inputs for speakerphone input and PC beep
 - One mono microphone input
- Audio outputs:
 - Stereo, line-level output
 - Mono output for speakerphone

Silent boot

This computer has the silent boot option. When the computer is turned on, the computer screen will not display startup information, or system messages, unless you press the Tab key.

If you need to disable the silent boot option, it is available in the BIOS Setup utility under **Boot Options** in the **Main** menu. Refer to "The BIOS Setup Utility" section to access the **Main** menu in the BIOS Setup utility.

Working Inside the Case

Static electricity precautions

Before opening the computer case, read and follow these precautions to prevent damage from static electricity.

Caution! **Preventing Static Electricity Damage**

Static electricity can permanently damage electronic components in the computer. Prevent electrostatic damage to the system by following static electricity precautions every time you open the computer case.

1. Turn off the computer power.
2. Touch a metal surface on the back of the computer.
3. Unplug all cords from the wall outlet.

Please also follow these static electricity precautions:

- Avoid static-causing surfaces such as plastic and styrofoam in your work area.
- Remove parts from their antistatic bags only when you are ready to use them. Do not lay parts on the outside of antistatic bags because only the inside provides antistatic protection.
- Always hold cards by their edges and their metal mounting bracket. Avoid touching components on the cards and the edge connectors that connect to expansion slots. Never slide cards or other parts over any surface.

Installing expansion cards

To install an expansion card:

1. Shut down the computer.

2. Remove the computer cover.

Refer to the documentation that came with your computer for information about opening your case.

3. Find a free expansion slot.
4. Remove the expansion card cover on the back of the case.
5. Install the card in the expansion slot.
6. Secure the card to the case.
7. Connect any required cables.

Refer to the documentation that came with your card for instructions.

8. Replace the cover.
9. Restart the computer.
10. Install expansion card software.

Refer to the documentation that came with your card for instructions.

Installing memory

This system board supports Synchronous Dynamic Random Access Memory (SDRAM) Dual In-line Memory Modules (DIMMs).

DIMMs represent an advancement in capability because they provide a 64-bit data path that allows for greater data transfer across the system board. The previous type of memory, Single In-line Memory Modules (SIMMs), provides only a 32-bit data path.

Two DIMM sockets are available on the system board, Bank 0 and Bank 1. You can fill Bank 0 or Bank 1 with DIMMs.

No jumper settings are required for the memory size or type because this information is automatically detected by the BIOS.

Memory Requirements

Any memory added to the computer must meet the following requirements:

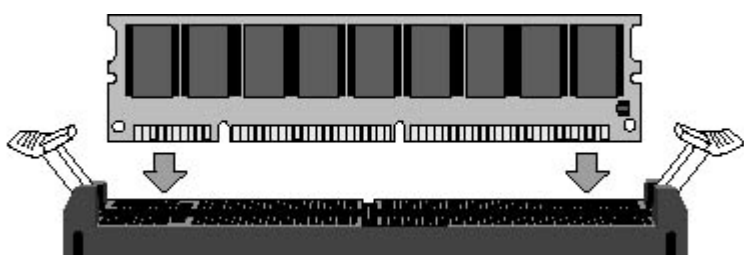
- Memory must be 8, 16, 32, 64, or 128MB DIMMs (64Mbit-based DRAMs)
- Memory must be either a Intel 4clock 66MHz or 100MHz unbuffered SDRAM DIMM specification (runs at 66MHz).
- Memory must contain a SPD EEPROM that is programmed in compliance with Intel's PC SDRAM SPD specification, rev. 1.2A

This memory can be in any combination, bank, or order to expand the SDRAM to 256MB.

To install DIMMs:

1. Shut down the computer.
2. Remove the computer cover.

Refer to the documentation that came with your computer for information about opening your case.
3. Pull open the plastic DIMM socket clamps on each side of the socket.
4. Insert the DIMM into the socket, as shown below. Insert it perpendicular to the socket and align the two notches in the DIMM with two notches in the DIMM socket.
5. Gently press the DIMM into the socket. The DIMM automatically locks into each of the socket clamps on each end of the DIMM.



6. Replace the cover.
7. Restart the computer.

To remove DIMMs:

1. Shut down the computer.

2. Remove the computer cover.

Refer to the documentation that came with your computer for information about opening your case.

3. Gently remove each of the plastic socket clamps on the sides of the DIMM. The DIMM should pop out from the socket.

4. Carefully lift the DIMM out of the socket.

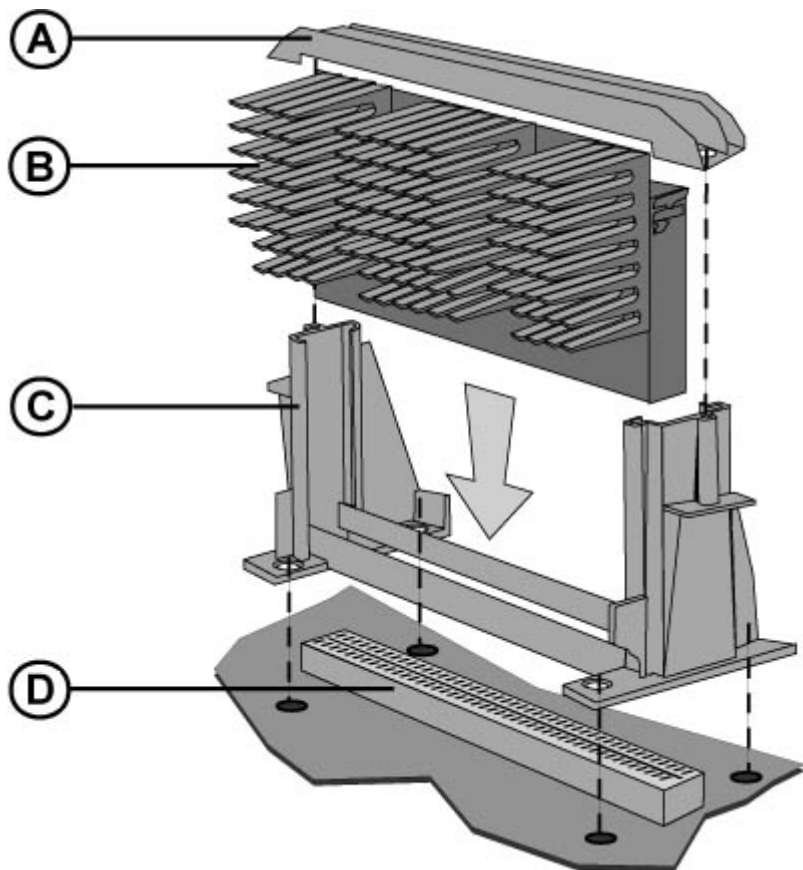
Caution!

Never try to remove a DIMM without releasing the clamps. You may break the socket, causing serious damage.

5. Replace the cover.

6. Restart the computer.

Installing a new processor



- A. Retention cap
- B. Heatsink and processor
- C. Retention mechanism
- D. Processor connector (slot 1)

To install a new processor on the system board:

1. Shut down the computer.

2. Remove the computer cover.

Refer to the documentation that came with your computer for information about opening your case.

3. Refer to the illustration of the system board, Section 2, to find the location of the Processor connector (Slot 1).

4. Remove the screws on the retention cap.

5. Remove the existing processor.

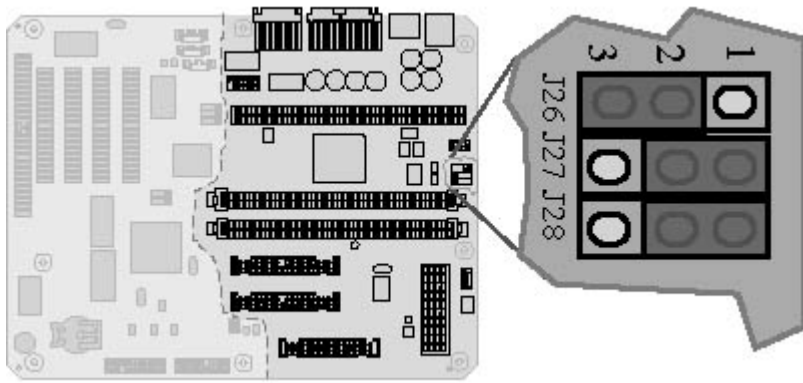
6. Position the processor with the heat sink facing the DIMM (memory) slot on the system board.

7. Plug the processor straight into the processor connector. Push evenly on both edges until the processor is firmly seated.

8. Place the processor retaining cap over the processor.

9. Secure the retaining cap using the two screws removed earlier.

10. Place the jumper shunt over the correct set of pins for each jumper.



The following jumper settings table shows the jumper settings for the different processor speeds:

| CPU FREQ | J26 | J27 | J28 |
|----------|-----|-----|-----|
| 233 MHZ | 1-2 | 1-2 | 2-3 |
| 266 MHZ | 2-3 | 2-3 | 1-2 |
| 300 MHZ | 1-2 | 2-3 | 1-2 |
| 333 MHZ | 2-3 | 1-2 | 1-2 |

Caution!

Make sure that the processor speed jumpers are set correctly. You computer may be damaged if you set the processor speed jumpers incorrectly.

11. Replace the cover.
12. Restart the computer.

Clearing passwords

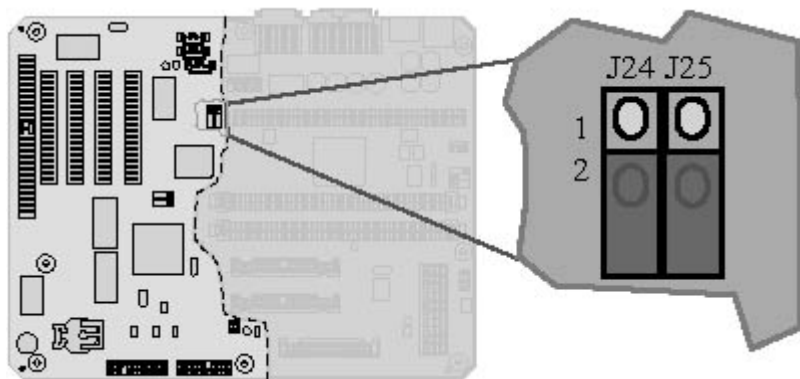
If you do not know your password, follow these instructions to set your clear your password using the J24 jumper on the system board.

To clear passwords:

1. Shut down the computer.
2. Remove the computer cover.

Refer to the documentation that came with your computer for information about opening your case.
3. Refer to the illustration of the system board, Section 1, to find the location of the J24 jumper.
4. Set the jumper J24 from the normal "OUT" position to the "IN" position.

The following illustration shows the settings for the J24 jumper.



5. Replace the cover.
6. Restart your computer.
7. Enter the BIOS Setup utility by pressing the F1 key.

Additional information on using the BIOS Setup utility can be found in the "The BIOS Setup Utility" section.

8. Press the right arrow key until you reach the **Security** menu.
9. If the password has not been cleared, exit the BIOS Setup utility.
10. Shut down the computer.
11. Remove the computer cover.

12. Set the J24 jumper back to the normal "OUT" position.

13. Replace the cover.

14. Restart the computer.

The BIOS Setup Utility

The BIOS Setup utility is used to determine the performance settings for your computer. These settings are stored and saved even when the power is turned off.

Caution!

The options in the BIOS Setup utility have been set for optimal performance. Changes to these settings will affect the performance of the computer.

Accessing the BIOS Setup utility

When you start your computer, a screen shows the progress of the startup as the operating system loads. Soon after the startup begins, **To change system settings press the <F1> key** appears. After you press F1, the **Main** menu screen of the BIOS Setup utility appears.

The Main Menu screen

| BIOS Setup Utility | | |
|---|------------------|--|
| Main Advanced Security Exit | | |
| System Date | Tue Mar 31, 1998 | F1 Help ESC Back Enter Select Previous Item Next Item Select Menu F5 Setup Defaults F6 Previous Values F10 Save & Exit |
| System Time | 10:37:28 | |
| Floppy Options | Press Enter | |
| Primary IDE Master | Press Enter | |
| Primary IDE Slave | Press Enter | |
| Secondary IDE Master | Press Enter | |
| Secondary IDE Slave | Press Enter | |
| Language | English | |
| Boot Options | Press Enter | |
| Video Mode | EGA / VGA | |
| Mouse | Installed | |
| Total Memory | 32 MB | |
| BIOS Version | 0AAKW015 | |
| (c)1998 GATEWAY, Inc. All Rights Reserved | | |

Menu Bar

This menu bar is at the top of the **Main** menu screen in the BIOS Setup utility. The following is a list of menu selections:

- **Main** gives you access to basic information and settings related to your computer hardware and configuration.
- **Advanced** gives you access to detailed information and the configuration settings for computer resources and hardware.
- **Security** gives you access to settings related to computer access passwords.
- **Exit** gives you access to options for exiting the BIOS Setup utility.

Command keys

The command keys are located at the right of the BIOS Setup utility screen.

Use the following keys from the **Command Bar** to navigate through the BIOS Setup utility screen.

- **F1** opens the **Help** screen, providing general help for using the BIOS Setup utility.
- Up (↑) and Down (↓) move you among the fields in the menu.
- Left (←) and Right (→) move you among the four major menus.
- **Enter** activates a selected field or, when a selected item is preceded by the greater-than symbol (>), moves you to a submenu screen.
- **Esc** returns you to the previous screen. In the **Main** menu this key lets you exit the BIOS Setup utility.
- **F5** opens a screen that lets you return all values to their default settings.

- **F6** restores the previous BIOS settings that were last saved.
- **F10** opens a screen that lets you save all settings and then exit the BIOS Setup utility.

Specifications

The following specifications are for the standard configuration; your computer may contain optional equipment. All specifications are subject to change without notice or obligation.

| | |
|----------------------------|--|
| <i>Desktop case</i> | 17" x 16.25" x 6.5" (WxDxH) (43.18mm x 41.28mm x 16.51mm) |
| <i>Mid-tower case</i> | 9.87" x 18.64" x 22.8" (WxDxH), including base (25.07mm x 47.35mm x 57.91mm) |
| <i>CPU</i> | Intel Pentium® II or CELERON® with MMXTM Technology |
| <i>CPU speed</i> | 233MHz, 266MHz, 300MHz, 333MHz |
| <i>Cache subsystem</i> | Primary, 32K write-back cache; 16K code/16K data |
| | External L2 cache is found on all Pentium II® processors. Celeron® processors have no external L2 cache. |
| <i>RAM capacity</i> | 168-pin Sync DRAM (SDRAM) memory. Two slots. Expandable to 256MB SDRAM (using 64Mbit-based DRAM). |
| <i>BIOS</i> | AMI BIOS. Flash BIOS for easy updates from diskette. |
| <i>IDE interfaces</i> | Supports up to four IDE devices (hard drives, CD-ROMs, or LS-120s) using two on-board PCI IDE connectors. Automatic drive type selection for easy setup. |
| <i>Diskette drive</i> | A floppy controller is integrated on the system board. Only one floppy device is supported on the product. |
| <i>I/O ports</i> | One parallel, one VGA, one serial port, and a second COM port connection. LPT and COM can be configured from system setup program. No jumper settings required. |
| <i>USB</i> | Universal Serial Bus (2 ports) |
| <i>Mouse</i> | PS/2 mouse connector |
| <i>Keyboard</i> | PS/2 keyboard connector |
| <i>Integrated Video</i> | Chromatics M2 AGP video controller |
| <i>Integrated Audio</i> | Ensoniq 1371 AC97 Audio System (one slot is shared with PCI) |
| <i>PCI expansion slots</i> | Four (one slot shared with ISA) |
| <i>Power supply</i> | 200 watts. ATX power connector for easy power cable changeover. |
| <i>System environment</i> | Internal temperature: 10°C to 35°C Humidity: 20% to 80% Altitude: -200 ft. to 10,000 ft. Shock, vibration: 12g, 11ms half-sine; 2 to 200Hz, 0.25g sinusoidal CPU clearance: >0.4 inch after installation, top and sides |
| <i>Certification</i> | FCC Class B, UL, CUL, CE Mark, VCCI, CB Scheme |

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Regulatory Compliance Statements

FCC American Users:

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

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

Caution!

The Federal Communications Commission warns the users that changes or modifications to the unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Accessories: This equipment has been tested and found to comply with the limits of a Class B digital device. The accessories associated with this equipment are as follows:

- Shielded video cable
- Shielded power cord.

These accessories are required to be used in order to ensure compliance with FCC rules.



Canadian Users:

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.



European Users:

This Information Technology Equipment has been tested and found to comply with the following European directives:

- [i] EMC Directive 89/336/EEC amending directive 92/31/EEC & 93/68 EEC as per
 - EN 50081-1:1992 according to
 - EN 55022:1995 Class B
 - EN 61000-3-2:1995 or EN 60555-2:1986
 - EN 61000-3-3: 1995
 - EN50082-1:1992 according to
 - EN 61000-4-2:1995 or IEC 801-2:1984
 - ENV 50140:1994 or IEC 801-3:1984
 - EN 61000-4-4:1988 or IEC 801-4:1998
- [ii] Low Voltage Directive (Safety) 73/23/EEC as per EN 60950: 1992



Japanese Users:


This equipment is in the Class 2 category (Information Technology Equipment to be used in a residential area or an adjacent area thereto) and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment aimed at preventing radio interference in such residential area.

When used near a radio or TV receiver, it may become the cause of radio interference. Read instructions for correct handling.

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取扱説明書に従って正しい取り扱いをして下さい。



Australian and New Zealand Users:

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to the Australian/New Zealand standard AS/NZS 3548 set out by the Spectrum Management Agency.