

Chapter 1

System Board

This high-performance system board utilizes a 64-bit Intel Pentium® CPU running at 100/66, 120/60, 133/66, 150/60, 166/66, or 200/66 MHz. It has four ISA and four PCI slots (with one PCI- and ISA-shared slot) for future expansion. It also has six 72-pin SIMM sockets that allow memory upgrade to a maximum of 192 MB. To further enhance system performance, the board integrates a 256-KB/512-KB pipelined-burst cache.

Standard features such as two serial ports, one parallel port, a diskette drive interface, and two embedded hard disk interfaces are also incorporated in the system board. A Universal Serial Bus (USB) interface is added to the design to enable the system to support additional peripherals.

The system features the power-management function that conforms to the power-saving standards of the U.S. Environmental Protection Agency (EPA) Energy Star program. It also supports the Plug-and-Play feature. This feature saves the user from configuration troubles, thus making the system more user-friendly.

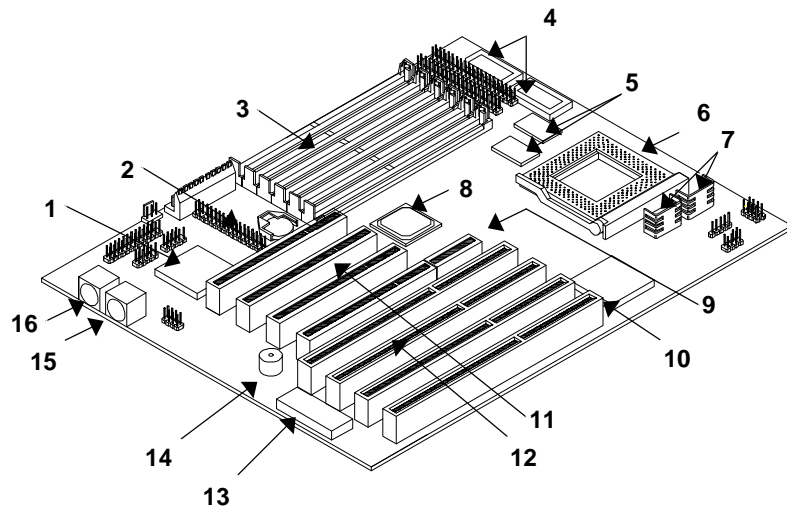
The system board may come with an optional SCSI/ASM card. This card enables the system to function as a server. The system is fully compatible with MS-DOS V6.X, OS/2, UNIX, Novell, Windows NT, and Windows 95 operating systems.

1.1 System Board Layout

The system board has the following features and components:

- Supports Intel Pentium CPU (100/66, 120/60, 133/66, 150/60, 166/66, 200/66 MHz), with 2.8V or 3.3V operating voltage
- 192-MB maximum system memory
- Six 72-pin SIMM sockets that accept single- (4 MB and 16 MB) and double- (8 MB and 32 MB) density SIMMs supporting either Extended Data Output (EDO) or EDO/Fast Page Mode (FPM) DRAM types (with or without Error Checking and Correction (ECC)/Parity function)
- 256-KB/512-KB pipelined-burst second-level cache
- Integrates an enhanced PCI local bus IDE controller
- 128-KB Flash ROM for system BIOS
- Four ISA- and four PCI-expansion slots (one PCI- and ISA-shared slot)
- Dual 16C550 buffered serial ports and one ECP/EPP parallel port
- Optional USB interface that enables the system to support more peripherals
- SCSI/ASM slot (for optional SCSI/ASM card)
- PS/2 mouse and keyboard interface
- Plug-and-Play function
- Power-management function

Figure 1-1 shows the board layout and the locations of the important components.



- | | |
|------------------------------------|----------------------------|
| 1 Super I/O controller | 11 PCI slots |
| 2 Battery | 12 ISA slots |
| 3 SIMM sockets | 13 Flash ROM |
| 4 Tag RAM | 14 Buzzer |
| 5 Pipelined-burst cache | 15 PS/2 mouse connector |
| 6 CPU socket | 16 PS/2 keyboard connector |
| 7 Voltage regulators with heatsink | |
| 8 Host-to-PCI bridge | |
| 9 SCSI/ASM card slot | |
| 10 PCI-ISA bridge | |

Figure 1-1 System Board Layout



The heatsink becomes very hot when the system is on. NEVER touch the heatsink with any metal or with your hands.

1.2 ESD Precautions

Electrostatic discharge (ESD) can damage your processor, disk drives, expansion boards, and other components. Always observe the following precautions before you install a system component.

1. Do not remove a component from its protective packaging until you are ready to install it.
2. Wear a wrist grounding strap and attach it to a metal part of the system unit before handling components. If a wrist strap is not available, maintain contact with the system unit throughout any procedure requiring ESD protection.

1.3 Pre-installation Instructions

Always observe the following before you install a system component:

1. Turn off the system power and all the peripherals connected to the unit before opening it.
2. Open the system according to the instructions in the housing installation manual.
3. Follow the ESD precautions in section 1.2 before handling a system component.
4. Remove any expansion boards or peripherals that block access to the SIMM sockets or CPU socket.
5. See the following sections for specific instructions on the component you wish to install.



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

1.4 Installing a CPU



Observe the ESD precautions when installing components. See section 1.2.

The system board features a zero-insertion force (ZIF) socket for easy CPU installation.

Follow these steps to install a CPU:

1. Pull up the socket lever.
2. Insert the CPU, making sure that pin 1 (indicated by a notched corner) of the CPU connects to hole 1 of the socket.
3. Pull down the socket lever to lock the CPU into the socket.

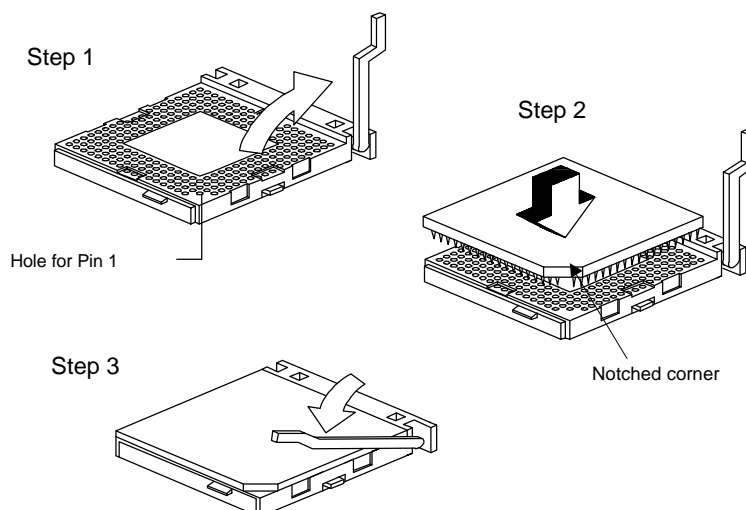


Figure 1-2 Installing a CPU



See section 1.9 for the post-installation instructions.

1.5 Upgrading the CPU

Follow these steps to upgrade the CPU:

1. Turn off the system power.
2. Pull up the socket lever.
3. Remove the installed CPU.
4. Install the upgrade CPU. Refer to section 1.4 on how to install a CPU.

1.6 Jumpers and Connectors

1.6.1 Jumper and Connector Locations

Figure 1-3 shows the jumper and connector locations on the system board.

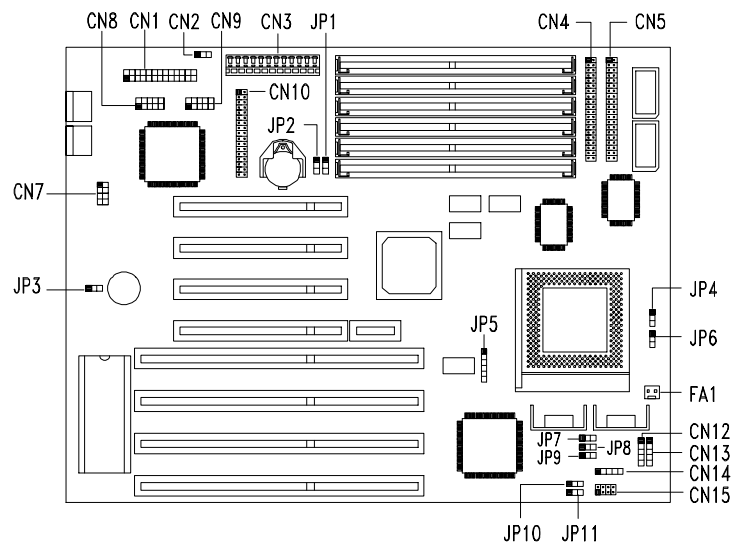


Figure 1-3 Jumper and Connector Locations



The blackened pin of a jumper or a connector represents pin 1.

1.6.2 Jumper Settings

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

Table 1-1 Jumper Settings

Jumper	Setting	Function
BIOS Type JP1	1-2 2-3	Acer BIOS OEM BIOS
Password Check JP2	1-2 2-3	Check password Bypass password
Buzzer/Speaker JP3	1-2 2-3	Buzzer External speakers
Core/Bus Ratio JP4, JP6	1-2, 1-2 2-3, 1-2 2-3, 2-3 1-2, 2-3	5/2 2/1 3/2 3/1
CPU Frequency JP5	2-3, 4-5 1-2, 3-4 1-2, 4-5	66 MHz 60 MHz 50 MHz
CPU Type JP7, JP8, JP9	1-2 2-3	P54C CPU P55C CPU
Reset/SMM Switch JP10	1-2 2-3 3-4	Enable SMM switch Enable Reset switch Additional Reset switch
CPU Voltage JP11	1-2 2-3	3.45V 3.3V

1.6.3 Connector Functions

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

Table 1-2 Connector Functions

Connector	Function
CN1	Printer connector
CN2	Software shut-down power supply control connector
CN3	Power connector
CN4	IDE1 connector
CN5	IDE2 connector
CN7	Universal serial bus interface
CN8	COM2 connector
CN9	COM1 connector
CN10	Diskette drive connector
CN11	SCSI/ASM slot
CN12	HDD LED connector
CN13	Speaker connector
CN14	Keylock
CN15	LED board connector
FA1	CPU fan connector

1.6.4 USB Interface (optional)

The system board may come with an onboard USB connector and a separate bracket connector. The USB interface enables the system to support more peripherals.

To install a USB bracket connector, simply do the following:

1. Locate the USB connector on the system board. See Figure 1-3.
2. Attach the USB bracket connector onto the onboard USB connector. Notice that one pin of the USB bracket connector is covered. This is to ensure proper connection (refer to the following figure).

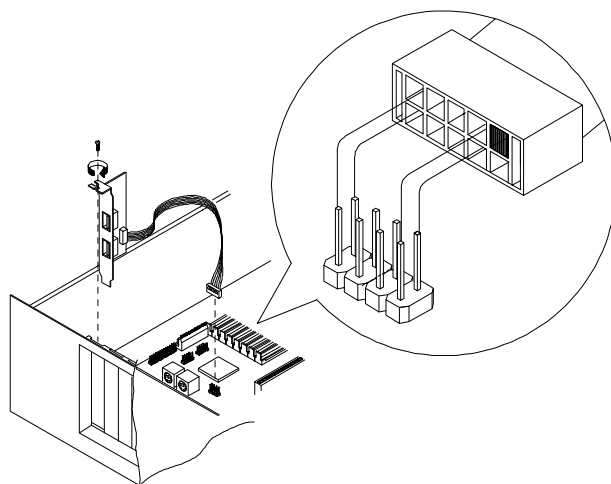


Figure 1-4 Installing a USB Bracket Connector

1.7 Installing Memory

The system memory is expandable to 192 MB by adding single in-line memory modules (SIMMs). See Figure 1-1 for the location of the SIMM sockets. Section 1.7.1 tells how to install SIMMs.

The six 72-pin SIMM sockets on board accept single-density (4- and 16-MB) and double-density (8- and 32-MB) SIMMs, with 70-ns or 60-ns DRAM speed. These SIMMs may support either EDO or FPM DRAM types, with or without ECC/Parity function. The ECC function allows the system to automatically correct one-bit errors and detect multiple-bit errors. Table 1-3 lists the possible memory configurations.

Table 1-3 Memory Configurations

Bank 0		Bank 1		Bank 2		Total Memory
Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	
4 MB	4 MB					8 MB
4 MB	4 MB	4 MB	4 MB			16 MB
4 MB	4 MB	4 MB	4 MB	4 MB	4 MB	24 MB
8 MB	8 MB					16 MB
8 MB	8 MB	4 MB	4 MB			24 MB
8 MB	8 MB	4 MB	4 MB	4 MB	4 MB	32 MB
8 MB	8 MB	8 MB	8 MB			32 MB
8 MB	8 MB	8 MB	8 MB	4 MB	4 MB	40 MB
8 MB	8 MB	8 MB	8 MB	8 MB	8 MB	48 MB
16 MB	16 MB					32 MB
16 MB	16 MB	4 MB	4 MB			40 MB
16 MB	16 MB	4 MB	4 MB	4 MB	4 MB	48 MB
16 MB	16 MB	8 MB	8 MB			48 MB
16 MB	16 MB	8 MB	8 MB	4 MB	4 MB	56 MB
16 MB	16 MB	8 MB	8 MB	8 MB	8 MB	64 MB
16 MB	16 MB	16 MB	16 MB			64 MB

Table 1-3 *Memory Configurations (continued)*

Bank 0		Bank 1		Bank 2		Total Memory
Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	
16 MB	16 MB	16 MB	16 MB	4 MB	4 MB	72 MB
16 MB	16 MB	16 MB	16 MB	8 MB	8 MB	80 MB
16 MB	16 MB	16 MB	16 MB	16 MB	16 MB	96 MB
32 MB	32 MB					64 MB
32 MB	32 MB	4 MB	4 MB			72 MB
32 MB	32 MB	4 MB	4 MB	4 MB	4 MB	80 MB
32 MB	32 MB	8 MB	8 MB			80 MB
32 MB	32 MB	8 MB	8 MB	4 MB	4 MB	88 MB
32 MB	32 MB	8 MB	8 MB	8 MB	8 MB	96 MB
32 MB	32 MB	16 MB	16 MB			96 MB
32 MB	32 MB	16 MB	16 MB	4 MB	4 MB	104 MB
32 MB	32 MB	16 MB	16 MB	8 MB	8 MB	112 MB
32 MB	32 MB	16 MB	16 MB	16 MB	16 MB	128 MB
32 MB	32 MB	32 MB	32 MB			128 MB
32 MB	32 MB	32 MB	32 MB	4 MB	4 MB	136 MB
32 MB	32 MB	32 MB	32 MB	8 MB	8 MB	144 MB
32 MB	32 MB	32 MB	32 MB	16 MB	16 MB	160 MB
32 MB	32 MB	32 MB	32 MB	32 MB	32 MB	192 MB

1.7.1 Installing a SIMM



Observe the ESD precautions when installing components. See section 1.2.

Follow these steps to install a SIMM:

1. Carefully slip a SIMM at a 45° angle into a socket making sure that the curved edge indicating the pin 1 of the SIMM matches pin 1 of the socket.



A SIMM fits only in one direction. If you slip in a SIMM but would not completely fit, you may have inserted it the wrong way. Reverse the orientation of the SIMM.

2. Gently push the SIMM to a vertical position until the pegs of the socket slip into the holes on the SIMM, and the holding clips lock the SIMM into position. The SIMM should be at a 90° angle when installed.

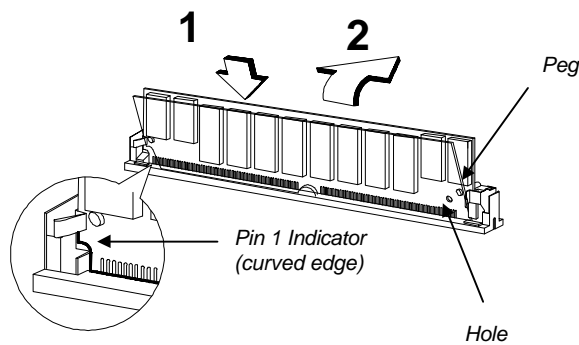


Figure 1-5 Installing a SIMM



See section 1.9 for the post-installation instructions.

1.7.2 Removing a SIMM

Follow these steps to remove a SIMM:

1. Press the holding clips on both sides of the SIMM outward to release it.
2. Move the SIMM to a 45° angle.
3. Pull the SIMM out of the socket.

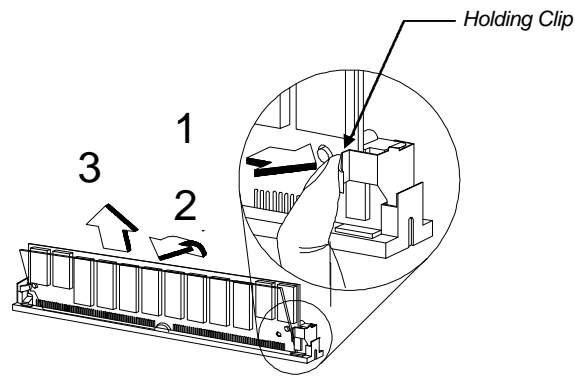


Figure 1-6 Removing a SIMM

1.7.3 Reconfiguring the System

The system automatically detects the amount of memory installed. Run Setup to view the new value for total system memory and make a note of it.

1.8 SCSI/ASM Card (optional)

1.8.1 Features and Layout

The system board may come with or without a Small Computer System Interface/Advanced Server Management (SCSI/ASM) card. This card integrates the Adaptec AIC-7880 SCSI controller and an optional ASM module.

The SCSI/ASM card offers the following functions:

- CPU thermal detection
- 5V and 3.3V voltage detection
- PCI bus utilization calculation

Figure 1-6 shows the card layout.

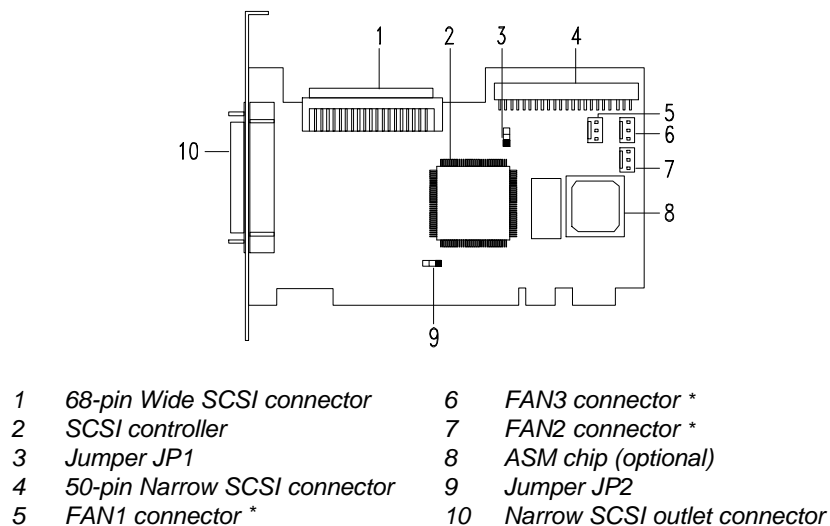


Figure 1-7 SCSI/ASM Card Layout

* Housing fan connector

1.8.2 Jumper Settings

Table 1-4 lists the SCSI/ASM card jumpers with their corresponding settings and functions.

Table 1-4 SCSI/ASM Card Jumper Settings

Jumper	Setting	Function
JP1	1-2 2-3	Terminator ON Terminator by 7880 chip
JP2	1-2 2-3	For M3A Reserved

1.8.3 Installing the SCSI/ASM Card



Observe the ESD precautions when installing components. See section 1.2.

Follow these steps to install the SCSI/ASM card:

1. Remove the card from its protective packaging.
2. Locate the PCI/ISA-shared slot on the system board (see Figure 1-1).
3. Align the golden fingers of the SCSI/ASM card to the slot.

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4. Gently but firmly insert the card. Make sure that the board is properly seated.

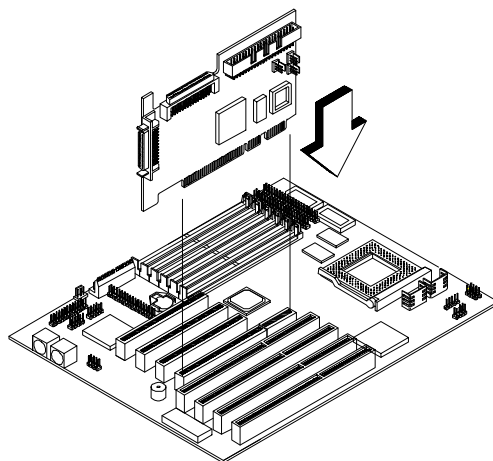


Figure 1-8 Installing the SCSI/ASM Card



See section 1.9 for the post-installation instructions.

1.9 Post-installation Instructions

Observe the following procedures after installing a system component:

1. See to it that the components are installed according to the step-by-step instructions in their respective sections.
2. Make sure you have set all the required jumpers. See section 1.6.2 for the correct jumper settings.
3. Replace any expansion boards or peripherals that you removed earlier.
4. Replace the system cover.
5. Connect the necessary cables and turn on the system.

1.10 Error Messages

In the event that you receive an error message, do not continue using the computer. Note the message and take corrective action immediately. This section describes the different types of error messages and suggests corrective measures.

There are two general types of error messages:

- Software
- System

1.10.1 Software Error Messages

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

1.10.2 System Error Messages

A system error message indicates a problem with the computer itself. These messages normally appear during the power-on self-test, before the operating system prompt appears. Table 1-5 lists the system error messages in alphabetical order.

Table 1-5 System Error Messages

Error Message	Corrective Action
Bad CMOS Battery	Replace battery. Contact your dealer.
CMOS Checksum Error	Run Setup.
Diskette Drive Controller Error	Check and connect the cable to the diskette drive or controller.
Diskette Drive Error	Diskette may be bad. If not, check the diskette drive and replace if necessary.
DRAM Configuration Error	Check and modify DRAM configuration to agree with Table 1-3.
Equipment Configuration Error	Run Setup.
Hard Disk Controller Error	Check and connect the cable to the hard disk drive or controller.
Hard Disk 0 Error	Check all cable connections. Check the hard disk and replace if necessary.
Hard Disk 1 Error	Check all cable connections. Check the hard disk and replace if necessary.
Hard Disk 0 Extended Type Error	Run Setup.
Hard Disk 1 Extended Type Error	Run Setup.
I/O Parity Error	Contact your dealer.
Keyboard Error or No Keyboard Connected	Check and connect the keyboard to the system unit.
Keyboard Interface Error	Contact your dealer.

Table 1-5 *System Error Messages (continued)*

Error Message	Corrective Action
Keyboard Locked	Unlock the keyboard.
Memory Error	Check SIMMs on the system board. Contact your dealer.
Memory Size Mismatch	Run Setup.
Serial 1 Conflict	Run Setup. Disable Onboard Serial 1.
Serial 2 Conflict	Run Setup. Disable Onboard Serial 2.
Parallel Port Conflict	Run Setup. Disable Onboard Parallel Port.
Pointing Device Error	Check or connect the pointing device. Contact your dealer.
Pointing Device Interface Error	Contact your dealer.
Press F1 key to continue or Ctrl-Alt-Esc for Setup	Press F1 or CTRL ALT ESC .
Press F1 to Setup or other key to continue	Press F1 and reconfigure the system.
Press Esc to turn off NMI, any key to reboot	Press ESC to disregard NMI error. Press any key to reboot the system.
Protected Mode Test Fail	Contact your dealer.
RAM BIOS Error	Contact your dealer.
Real Time Clock Error	Run Setup.
Shadow RAM Fail	Contact your dealer.
System Memory Address Error	Check SIMMs on system board or contact your dealer.

1.10.3 Correcting Error Conditions

As a general rule, the "Press F1 to continue" error message 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 these values down when the system is correctly configured. An incorrect Setup configuration is a major cause of power-on error messages, especially for a new system.
2. Remove the system cover according to the directions in the system housing installation guide. Check that 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 physically formatted. Physically format the disk using the FDISK and FORMAT commands.
4. Check that all connectors and boards are secure. Consult the system housing installation guide for assistance.

If you follow 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. Contact an authorized service center for assistance.