SAHARA 3810

SYSTEM USER GUIDE

Getting Started

Introduction to the SAHARA 3810 System

The unique design of the **SAHARA 3810 System** combines state-of-the-art electronics with a sophisticated compact form factor to provide you with a smaller personal computer that is both fast and powerful. Defining the next-generation of corporate computing, the **SAHARA 3810 System** integrates the high-performance of an Intel Celeron Coppermine PPGA/FC-PGA CPU with enhanced IDE hard disk drive to provide extra processing power as well as the high-speed data access you need to handle all your computing requirements. The use of integrated input/output connectors results in reduced emissions and more input/output space at the rear.

The **SAHARA 3810 System** can be customized to perform a vast array of data transfer and simplified networking tasks. The **SAHARA 3810 System** not only employs the latest breakthroughs in personal computing technology but also complies with accepted industry standards for maximum compatibility. And with its integrated management technology, the **SAHARA 3810 System** allows centralized control of diagnostics and upgrades across the network, significantly lowering maintenance costs.

The **SAHARA 3810 System**'s ultra-slim profile hides a revolutionary mainboard that packs in powerful multimedia performance including DVMT for fast 3D graphics performance, software DVD support, and 3D Sound Blaster Pro™ compatible audio, allowing you to take advantage of the fascinating world of multimedia education and home entertainment. Choose from hundreds of interactive CD-ROM titles and watch a vivid, colorful world open up before your eyes, allowing you to enjoy high quality audio with all your games, applications, and digital recordings. It also has a Line-In port, a Speaker-Out port and an External Microphone port allowing you to use a wide variety of audio software.

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The **SAHARA 3810 System** comes with two serial ports, two USB ports, one parallel port with ECP/EPP, Audio connector (Line-In, Line-Out, MIC-In), one RJ45 LAN connector, two PS/2 connectors, one D-sub 15-pin female VGA port, one IrDA port (optional), and one riser card with two PCI, one DFP port (optional), allowing you to connect your computer to a wide variety of input-output devices such as mice, printers, modems, and graphics tablets. This User Guide is provided to help you get the most out of your new investment. It describes all the features of the **SAHARA 3810 System** in an easy-to-read yet thorough manner. The primary goals of this chapter are (1) to introduce the computer's features and (2) to identify the computer's external components. The chapter begins with instructions for unpacking your new **SAHARA 3810 System**.

Unpacking the SAHARA 3810 System

Before unpacking the **SAHARA 3810 System**, prepare a suitable workspace for your computer. Provide a steady, level and clean surface, near an electrical wall outlet. If you are using a Fax/Modem, make sure that the workspace is located near a telephone jack. Also ensure that the computer has enough space around it to allow for airflow, especially at the rear of the computer near the fan. If the computer does not have enough ventilation, internal components can become overheated and may become damaged.

NOTE: Using a computer for extended periods of time, a poor workstation set-up, and incorrect work habits can create health problems. The science of *ergonomics* studies the relationship between health and a suitable work environment. For more information on ergonomics, contact your nearest computer bookstore, or local library.

When opening the box for your computer, make sure that you do not damage the box. You may need it in the future for shipping or storing your **SAHARA 3810 System**.

When you have unpacked your computer, make sure the following items are
included in the box and are in good condition. If you find that any of these items
are missing or appear damaged, contact your **SAHARA 3810 System** dealer
immediately.

Item Checklist

- **SAHARA 3810 System** Unit
- AC Power Cord
- one IDE Ribbon Cable
- one IDE Power Cord
- one CD-ROM Drive Ribbon Cable
- one CD-ROM Drive Connector Adaptor
  Heatsink with Fan (for PPGA /FC-PGA Socket 370 CPU's)
- Screw Kit
- This User's Manual
- Quick Start with Safety Regulations Manual
- Support Drivers and Utilities CD-ROM Disc
- System Stand Foot Set
- Rubber Foot Set

Remove the items from the shipping carton and protective packaging. Do not
throw away the packing material or shipping carton in case you need to ship or
store the components of the computer for future use.

Setting Up the SAHARA 3810 System

Place the computer system in a site that is clean, well-ventilated and near a
grounded (three-pronged) outlet. If the computer does not have enough
ventilation, internal components may overheat and become damaged. If you are
using a Fax/Modem make sure the workspace is near a telephone jack.

NOTE: If the line voltage in your area is unreliable, you may want
to use a voltage regulator to protect the system from possible
harmful effects caused by sudden electrical surges.

Although the computer system is designed and built to work and last for a long time, you may do well to heed the following precautions to get the most out of the system:

■ Avoid placing the system on an unstable stand or surface subject to bumps and violent shaking.

■ Avoid food, smoke, or traffic areas that may expose the system to liquid and food spills, cigarette ashes and dust.

■ Do not subject the system to extreme temperatures and humidity.

■ Occasionally clean the computer with a soft cloth moistened with water.

■ Do not use soap or liquid cleaners on the display monitor.

NOTE: Unless you are a qualified technician, never tinker with any of the components inside the system unit, display monitor and keyboard. Irresponsible use of the system will invalidate the warranties and may cause you unnecessary harm.


NOTE: When the system stands vertically, the front panel must be the same as the above photo indicated for the operation conveniently.

> **NOTE:** In order to save valuable working space on your desktop, it is advised that the system be placed in a vertical position as opposed to the horizontal position. In case system will be placed flat on a horizontal position, attached the Rubber Foot Set to the system chassis cover (see section on Attaching the Rubber Foot Set on the following page) and make sure that the system cover's ventilation air holes are not blocked (e.g., display monitor, paper, etc.) and that the computer has enough space around it to allow for airflow, especially at the rear of the computer near the fan. If the computer does not have enough ventilation, internal components can become overheated and may be damaged.

A Look at the Front of the Computer

Refer to the following illustration to identify components located at the front of the **SAHARA 3810 System**.
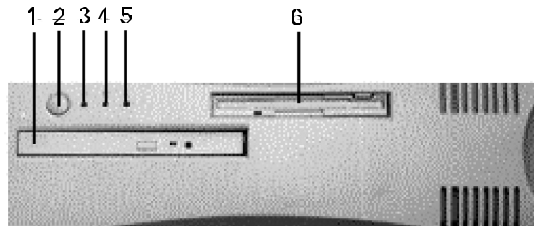
1. **12.7mm Slim CD-ROM Drive**
The CD-ROM drive is located near the top of the **SAHARA 3810 System**.

2. **Power Button**
Press this button to turn your computer on and off. If you press and hold for 1 second, the system will enter suspend mode, and if you press and hold for 4 seconds, the system power will turn off.

3. **Power LED**

When this green LED is lit, it indicates that system power is on.

4. **Hard Disk Drive Access LED**
When lit this green LED indicates that the hard disk drive (HDD) or CD-ROM is being accessed.

5. **LAN Active LED**
When lit this amber LED indicates that the system is currently online or connected to the Network.

6. **Floppy Disk Drive**
The 3½" slim floppy disk drive (FDD) unit is located above the CD-ROM drive.

Attaching the Rubber Foot Set

Attach the four rubber foot set by peeling it off from the backing tape and sticking it on the four indentations found on the system chassis cover.
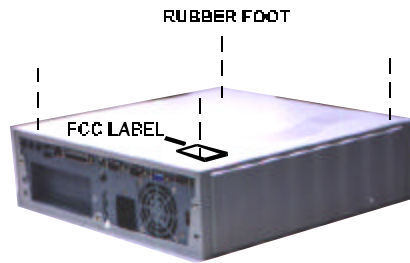
A Look at the Rear of the Computer

The rear of the **SAHARA 3810 System** is where you connect power, peripheral devices such as a Fax/Modem or printer, input devices such as a PS/2 keyboard, and output devices such as your display monitor. Refer to the following for an explanation of each of the rear components:
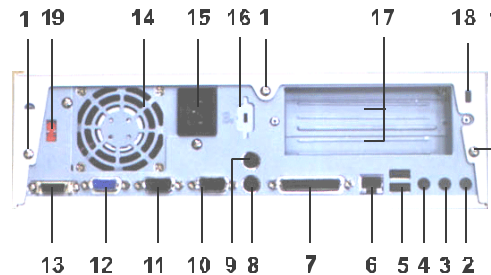
Rear of the SAHARA 3810 System

1. Rear Panel Screws

Use a Philips screwdriver to remove the three rear panel screws and turn counter clockwise to release the chassis cover.

2. Line-Out Jack (Lime colored, Pantone 577C)

This jack is for inputing voice. Connect audio devices, such as a speaker to this port.

3. Line-In Jack (Light blue, Pantone 284C)

This socket allows tape players or other audio sources to be recorded by your computer or played through the Line-Out jack.

4. Microphone Jack (Pink, Pantone 701C)

Plug the microphone to this jack for inputing voice.

5. USB Ports (Black, Pantone 426C)

Provides fast and convenient Plug and Play peripheral connections outside your computer, allowing you to take full advantage of the universal functionality and flexibility of USB technology. Connect a USB hub to these ports.

6. RJ45 LAN Cable Socket

The LAN cable is plugged into this socket.

7. Parallel Port (Burgundy, Pantone 235C)

This connector allows the system to link with a parallel device such as a printer through a printer cable.

8. PS/2 Keyboard Connector (Purple, Pantone 2715C)

This connector is used to connect the PS/2 keyboard to the system.

9. PS/2 Mouse Connector (Green, 3395C)

This connector is used to connect the PS/2 mouse to the system.

10. COM1 Port (Teal, Pantone 322C)

Allows the connection of devices that take serial ports such as a serial mouse.

11. COM2 Port (Teal, Pantone 322C)

Allows the connection of devices that take serial ports such as a modem. It is recommended to connect your serial mouse to the COM1 port and your fax/modem to the COM2 port.

12. VGA Port (Blue, Pantone 661C)

Connect the display monitor to this port.

13. DFP Port (future option, White)

Connect the digital flat panel display device to this port.

14. Power Supply Fan

This fan is used to cool the AC power supply. Ensure that there is free air flow around the cooling fan.

15. AC-In Socket

Connect the computer AC power cord to this socket. Ensure that the power cord is connected to a stable AC power source.

16. IR Port (future option)

Connect the IR device to this port.

17. Adapter Panel

Behind this panel is the expansion slot where an adapter or add-on card can be installed.

18. Keylock

This metal ring on the chassis is for the lock of the system.

19. Voltage Switch

This switch is equipped for allowing you to select the system voltage that either 115 volts or 230 volts.

NOTE: Before you plug the power cord, make sure that the voltage is selected correctly; otherwise, it may damage the system.

Display

The system comes with an DVMT-based Intel 810E Graphics and Memory Controller HUB (GMCH) embedded in Intel 810E controller chip. This VGA controller offers output pixel data rates with non-interlaced screen resolutions of up to 1600x1200x256 colors at a refresh rate of 85Hz. The Graphic (DVMT) controller enables the system to have a higher performance under Windows and other GUI (Graphics User Interface) environments, plus optimizations, which result in even more impressive 2D and 3D performance. The Intel 810E delivers 3D performance unmatched in its class, along with a comprehensive list of 3D features including perspective-correct texture mapping, bilinear and anisotropy MIP mapping, gourad shading, alpha-blending, fogging and Z Buffering. In addition, the controller supports a memory; thus, alleviating the need for the display cache.

General Features

- Support for Intel Coppermine (FC-PGA) CPU, Front Side Bus Frequency with asynchronous/synchronous Host/DRAM Clock scheme 100/100MHz ,133/100MHz.
- Full PC99 compliance
- 2 DIMM Banks of 3.3V SDRAM
- System memory size up to 512 MB
- Up to 256 MB per row
- Support for 16MB, 32MB, 64 MB, 128 MB, 256 MB SDRAM technology
- Relocatable System Management Memory Region
- Shadow RAM size from 640KB to 1MB in 16 KB increments
- Two Programmable PCI Host Areas

GMCH Graphics Support

The Graphics and Memory Controller Hub (GMCH) includes a highly integrated graphics accelerator. Its architecture consists of dedicated

multi-media engines executing in parallel to deliver high performance 3D, 2D, and motion compensation video capabilities. The 3D and 2D engines are managed by a 3D/2D pipeline preprocessor allowing a sustained flow of graphics data to be rendered and displayed. The deeply pipelined 3D accelerator engine provides 3D graphics quality and performance via per-pixel 3D rendering and parallel data paths that allow each pipeline stage to simultaneously operate on different primitives or portions of the same primitive. The GMCH graphics accelerator engine supports perspective-correct texture mapping, bilinear and anisotropic Mip-Mapping, Gouraud shading, alpha-blending, fogging and Z-buffering. A rich set of 3D instructions permit these features to be independently enabled or disabled.

For the 82810E, a Display Cache (DC) can be used for Z-buffers (Textures and display buffer are located in system memory). If the display cache is not used, the Z-buffer is located in system memory.

The GMCH integraphics accelerator's 2D capabilities include BLT and arithmetic STRBLT engines, a hardware cursor and an extensive set of 2D registers and instructions. The high performance 64-bit BitBLT engine provides hardware acceleration for many common Windows operations.

In addition to its 2D/3D capabilities, the GMCH integrated graphics accelerator also supports full MPEG-2 motion compensation for software-assisted DVD video playback, a VESA DDC2B compliant display interface and a digital video out port that may support (via an external video encoder) NTSC and PAL broadcast standards.

Display, Digital Video Out, and LCD/Flat Panel (Optional)

The GMCH provides interfaces to a standard progressive scan monitor, and LCD/Flat Panel transmitter.

- The GMCH directly drives a standard progressive scan monitor up to a resolution of 1600x1200.
- The GMCH provides a Digital Video Out interface to connect an external device to drive an autodetection of 1024x768 non-scalar DDP digital Flat Panel with appropriate EDID 1.x data.

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Display Capabilities

The following tables represent the modes supported.

Display Modes Supported

RESOLUTION	Bits Per Pixel (frequency in Hz)		
	8-bit Indexed	16-bit	24bit
320x200	70	70	70
320 x240	70	70	70
352x480	70	70	70
352x576	70	70	70
400x300	70	70	70
512x384	70	70	70
640x400	70	70	70
640x480	60,70,72,75,85	60,70,72,75,85	60,70,72,75,85
720x480	75,85	75,85	75,85
720x576	60,75,85	60,75,85	60,75,85
800x600	60,70,72,75,85	60,70,72,75,85	60,70,72,75,85
1024x768	60,70,75,85	60,70,75,85	60,70,75,85
1152x864	60,70,72,75,85	60,70,72,75,85	60,75,85
1280 x1024	60,70,72,75,85	60,70,72,75,85	60,70,75,85
1600 x1200	60,70,72,75		

Flat Panel Modes Supported

RESOLUTION	Bits Per Pixel (frequency in Hz)		
	8-bit Indexed	16-bit	24bit
320x200[1]	60	60	60
320 x240[1]	60	60	60
352x480[1]	60	60	60
352x480[1]	60	60	60
352x576[1]	60	60	60
400x300[1]	60	60	60
512x384[1]	60	60	60
640x350[1]	60	60	60
640x400[1]	60	60	60
640x480[1]	60	60	60
720x480[1]	60	60	60
720x576[1]	60	60	60
800x600[1]	60	60	60
1024x768	60	60	60

NOTES:

1.These resolutions are supported via centering.

Ethernet PCI Bus (LAN)

The 82559 10/100 Mbps Fast Ethernet controller with an integrated 10/100 Mbps physical layer device is Intel's leading solution for PCI board LAN designs. It is designed for use in Network Interface Cards (NICs), PC LAN On Motherboard (LOM) designs, embedded systems and networking system products. The 82559 combines a low power and small package design which is ideal for power and space constrained environments.

The 82559 continues Intel's platform LAN technology leadership supporting: Advanced Configuration and Power Interface (ACPI) 1.0A based power management, wake on Magic Packet*, wake on interesting packet, advanced System Management Bus (SMB) based manageability, Wired for Management (WfM) 2.0 compliance, IP checksum assist, PCI 2.2 compliance, and PC 98, PC 99, and Server 99 compliance. Designs based on the 82559 for desktop systems, notebooks, PC cards, and servers will set a new industry standard for energy conservation.

Features

- Dynamic transmit chain with multiple priorities transmit queues
- Glueless 32-bit PCI master interface
- 64 Kbyte Flash interface
- Integrated power management functions
- Highly efficient chained memory structure similar to the 82558,82577, and 82596 enabling backwards compatible software
- Full duplex support at both 10 and 100 Mbps operation
- IEEE 802.3u Auto-Negotiation support
- 3 Kbyte Transmit FIFO and 3 Kbyte Receive FIFO
- Back-to-back transmission support with minimum interframe spacing
- IEEE 802.3x 100 BASE-TX Flow Control support
- Enhanced Adaptive Technology capabilities
- TCP/UDP checksum off-load capabilities
- Glueless 32-bit PCI bus master interface
- Efficient dynamic standby mode
- Deep power-down support
- Clockrun protocol support

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# Getting Ready To Go

Introduction

This chapter provides you with the necessary information and instructions you need to set up the new SAHARA 3810 System. This chapter also guides you through starting up the computer for the first time and doing basic operations. Setting up the computer involves the following steps:

- ■ Connecting a display monitor to the computer
- ■ Connecting a keyboard to the computer
- ■ Connecting a PS/2 mouse to the computer
- ■ Connecting any other peripherals that you may have including a printer, a serial mouse, audio equipment or a USB peripheral
- ■ Plugging in and turning on the computer

System Connections

The **SAHARA 3810 System** should look like the following figure after all the initial connections are in place.
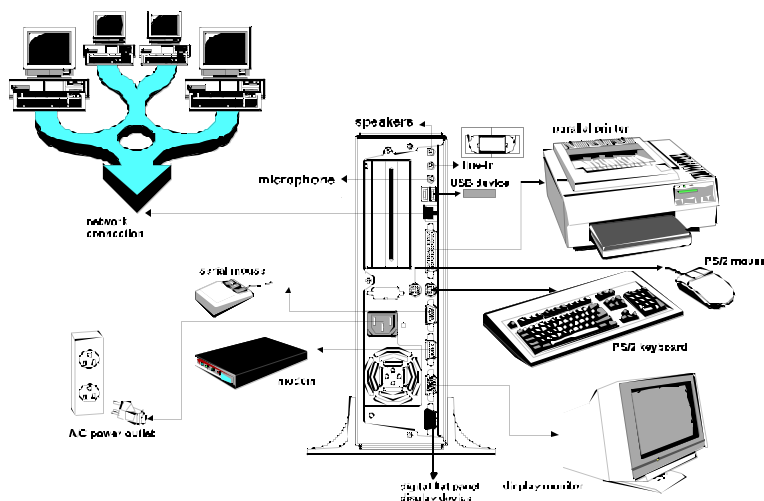
Operating System

A computer starts up only when there is an **operating system (O/S)** existing on its hard disk or when a system diskette is in its primary drive, normally designated as drive A. Think of the operating system or user interface as the translator between the computer chip and you. The computer chip sits there with its tremendous computing power, but it needs a way to tell you what is going on and you need a way to tell it what you want it to do. You communicate through the user interface.

Most computers are sold with an operating system pre-installed. If this is true of your computer, you can **be sure that the hard disk is pre-formatted and contains the files necessary for booting**. If the hard disk is not yet formatted and the O/S not yet installed into it, read carefully the related manuals for instructions in the proper hard disk formatting and running of the Setup program of MS-DOS.

The computer automatically loads the O/S after you turn it on. This process is called **booting**. If you are booting from a system diskette, see the section on Diskette Operations to know how to insert diskettes into the drive. If you are booting from the hard disk, proceed with the following instructions.

Diskless LAN Station Setup

After completing the system connections described in the Section **System Connections** on page 17. You can link with your local area network by simply following the steps listed in Appendix C.

Power-On Operations

1. Turn on the computer by pressing the power button. Each time the system power is turned on, the system runs a series of tests, commonly referred to as POST (Power-On-Self-Test) which checks the status of major computer devices that include the board, memory, video, key-board, and disk drive. Some status messages of POST appear on the screen. POST compares the current hardware setup status with the default configuration information preentered into the system BIOS Setup. (See Chapter 4 for details on the BIOS Setup settings.)

2. When POST detects a mismatch between the actual hardware configuration and the BIOS Setup default settings, error messages indicating invalid configuration appears on the screen. Normally, the message specifies the cause of the problem, thereby giving you a hint on how to fix the problem. When you see such an error message, refer to Chapter 5 on Troubleshooting Tips in this manual to know how to solve the problem. If the error message persists or if the problem is not discussed in the Troubleshooting Tips chapter, consult your dealer or a qualified service technician for assistance.

3. When no mismatch is found and POST successfully completes its check, the computer first tries to boot from drive A. If there is no diskette in drive A, the computer boots from the hard disk, usually designated as drive C. When the computer boots from the hard disk that has an operating system properly installed on it, the system prompt, usually the C:> prompt appears. The appearance of the C:> prompt signifies successful booting or start-up of the system. You could now start installing or using the application programs like MS-Windows.

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Diskette Operations

Inserting/Removing Diskettes

Floppy disks are the portable storage system for your computer, similar to file folders for your work. On floppy disks you can store the projects created in the computer, make an extra copy or carry them to another computer.

When you are starting up the system for the very first time, the disk drives probably will have the cardboard head protector inserted into the drive.

1. Remove the cardboard head protector from the disk drive. Press the eject button to pull out the cardboard. Keep the cardboard for future use in case you may have to move the system.

2. If the system does not have a hard disk and an operating system, insert a system diskette (that comes with the operating system diskettes and contains the COMMAND.COM file). When you insert a diskette in the floppy disk drive (FDD), insert the diskette with the label side up and the metal plate first into the drive until the diskette locks in place.

3. To remove a diskette from the FDD, press the diskette eject button to make the diskette come out partway out of the drive and gently pull out the diskette by hand.

NOTE: When the system is accessing the drive (indicated by the lit in-use indicator), be careful not to remove a diskette or accidentally press the power button. Doing so may destroy the data on the diskette and may damage the drive mechanism.
Even though the 3.5-inch floppy diskette are encased in a hard plastic coating, they should be treated with care.

Diskette Types

The type of diskette that you can use in a disk drive depends on the drive size.
See the following table to know the drive/diskette compatibility features:

DRIVE CAPACITY	DISKETTE DENSITY	READ/WRITE
High Capacity	High Density	Yes/Yes
1.44MB/ 3.5 inch		Yes/Yes*
Standard Capacity	High Density	No/No
720KB/ 3.5 inch	Standard Density	Yes/Yes

NOTE: * To format a standard-density diskette in a high-capacity drive, you must include certain parameters in the formatting command.
Refer to the operating system documentation for details.
Note that the capacity of a standard-density diskette will not change when it is formatted in a high-capacity drive.
A standard-capacity disk drive might not be able to read a standard-capacity diskette that was written or formatted in a high-density drive.

Backing Up Master Diskettes

Master diskettes are the original diskettes of the operating system or software programs. As a safeguard against unexpected damage or alterations, make backup copies of the master diskettes and use the backup diskettes for everyday operation. Store the master diskettes in a safe place. Consult the MS-DOS or MS-Windows documentation to know how to properly back up diskettes. The hard disk has a much larger capacity and faster access speed than the floppy disk drive. For your convenience, you are advised to copy frequently-used program files from your MS-DOS or utility diskettes or other application programs into your hard disk so you can run the programs from there. One of the most important uses of floppy disks is to back up your work so that if anything happens to the copy that is on the hard drive (hard drives can crash and erase all your work) you have a copy. Get in the habit of making backup copies of your work often. Store a copy at another location for extra protection.

As folks in the computer world always say, "It isn't a question of *if* your hard drive will crash, only a question of *when*."

Resetting the Computer

You may re-start the system (that is, go through booting and POST operations again) without turning the computer power off and on again.

Press <**Ctrl> + <Alt> + <Del>** keys simultaneously.

Power-Off Operations

If you are using a DOS-based program:
1. Save the data and exit to the system prompt.
2. Remove the diskette, if any, from the disk drive.
3. Turn off the computer by pressing the Power Button.
4. Turn off the power of any connected external devices.

If you are using any MS Windows-based program, make sure you shut it down first before turning off system power:
1. Save and close any open files. Though most programs will remind you to save your work if you forget, taking the initiative to save your work is a good habit to form.
2. Click the Close button for the program window.
3. If you have no unsaved documents, the program closes and you return immediately to the Windows desktop.
4. If you have an unsaved work or a work containing unsaved changes, the program asks you whether to save it. Click on Yes to save it or on No to abandon it.
5. If you click on Yes and the document has never been saved before, the Save As dialog box appears. Name and save your work.
6. To turn off your computer after closing the program, it's very important to shut down Windows first. Click the Start button, then click on the Shut Down option to display the Shut Down Windows dialog box.
7. Click the Yes button, then wait until you see the message "It is now safe to turn off your computer." before you turn the computer off.

> **NOTE:** If the computer is turned on again immediately after turning it off, wait for at least five seconds to avoid damaging it.

Making Upgrades Easy

Before You Begin

We recommend that you contact your **SAHARA 3810 System** reseller for carrying out any system upgrades. The following upgrades to the system are best if attempted only by a qualified technician.

Make sure you have a stable and clean working environment. Dust and dirt can get into computer components and cause malfunction. Use containers to keep small components separated. Many of the screws on the computer are of different sizes; if you place them together you may spend a lot of time trying to track down the correct screw when you are assembling the computer back together. Also, placing all small components in a safe container keeps them from getting lost. Having adequate lighting and using proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver
- A flat tipped screwdriver
- A set of jeweler's screwdriver
- A multimeter (not always required)
- A grounding strap

Most of the electrical connections can be disconnected by using your fingers. It is recommended that you do not use needle-nosed pliers to disconnect connections as this can damage the soft metal or plastic parts of the connectors. Many connectors have tabs to keep them secure. After the tabs are disengaged the connector should easily slide out. You can use a small screwdriver to gently pry some of the connectors loose. If the connector does not come out easily, make sure that nothing is obstructing it, and gently rock it back and forth in its slot until it loosens enough to come out. Do not force it!

Before working on internal components, make sure that the computer's power is off. Ground yourself before touching any internal components by touching a metal object. Static electricity can damage many of the computer's electronic components. Humid environments tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.
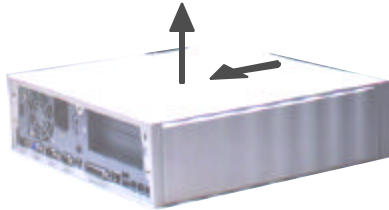
Removing the Chassis Cover

1. Turn the power of the system unit off and all connected peripherals.
2. Disconnect all power cords and cables from the system unit.
3. Remove the system unit from its base and place it on a flat and stable surface.
4. Loosen the three screws securing the chassis cover with a Philips screw screw driver.
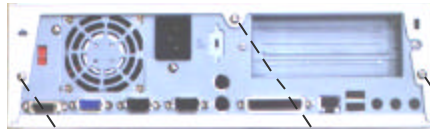
5. Unlock and remove the universal security cable (optional).
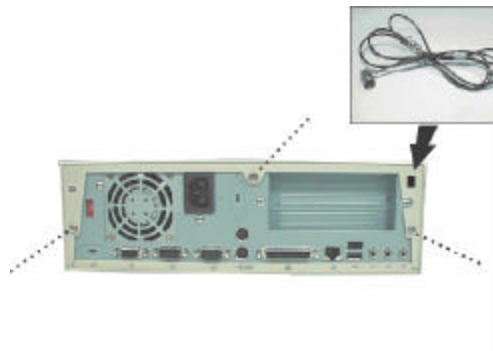
6. Grasp the cover with both hands. Slide the cover towards you and pull upward until it slides off the chassis.

Removing the Front Panel Chassis

The **SAHARA 3810 System's** innovative design features a slide out front panel chassis giving direct access to the mainboard for optimized final configuration, while making upgrades and servicing quick and easy.

**1.** Remove the two screws holding the front panel chassis by a screw driver.

2. Slide the front panel chassis away and place it slightly in front of the main body, taking care not to damage the sensitive FDD-cable of the slim floppy disk drive and other system and mainboard components.

Installing the Hard Disk Drive (HDD)

To install a Hard Disk Drive, please refer to the following steps:

1. Remove the front panel chassis (see previous section "**Removing the Front Panel Chassis**").

2. Disconnect the FDD-cable of the slim floppy disk drive from the mainboard by pulling up both sides of the 26-pin block connector to release it.

Chapter 3
Making
Upgrades
Easy
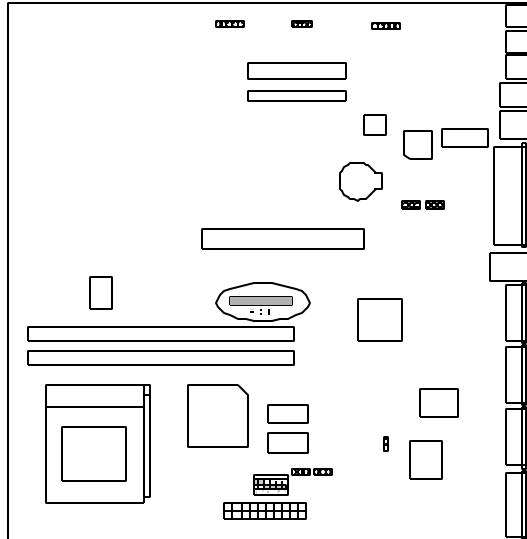
3. Pull out the LED wires plugged to the F_PNL connector.
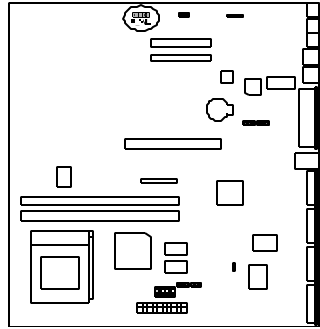
4. Slide the new HDD on to the HDD holder and secure the four screws (two screws on one side and two screws underneath) to hold the hard disk drive in place.
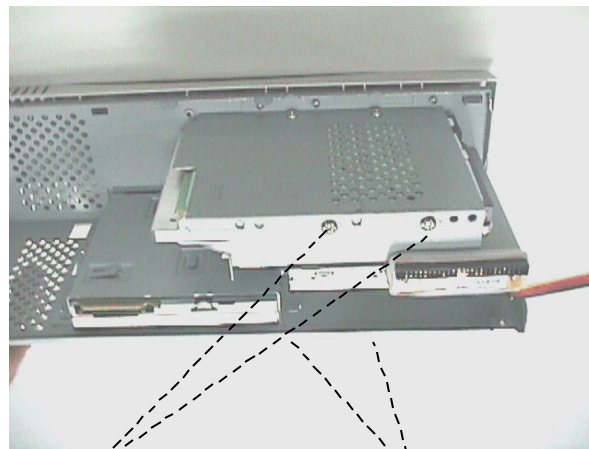

2 Side screws   2 Screws underneath

5. Connect one end of the IDE ribbon cable onto the hard disk drive, taking care to align the ribbon cable with the red stripe on to pin-1 of the hard disk drive connector (the side nearest the power plug connector).

6. Connect the power cord coming from the power supply to the DC power connector located at the back of the HDD.
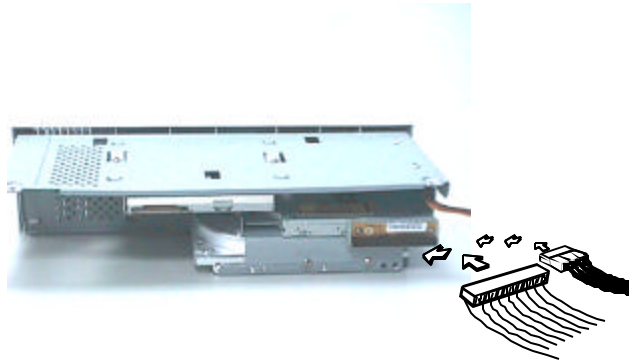
7. Place the front panel chassis slightly in front of the main chassis.

8. Connect the other end of the provided IDE hard disk ribbon cable onto the PRIMARY connector on the mainboard, taking care to align the ribbon cable with the red stripe on to pin-1 of the PRIMARY connector. Pin-20 is removed to prevent inserting in the wrong orientation when using rib-bon cables with pin-20 plugged.
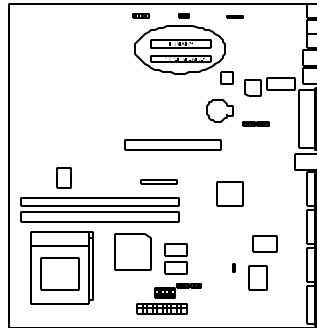
9. Connect the power cord coming from the DC power connector located at the back of the HDD to the HDD_PW connector.
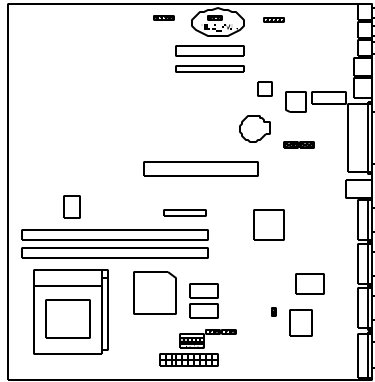
10. Connect the FDD-cable of the slim floppy disk drive to the 26-pin FDD block connector on the mainboard by inserting the edge connector and press down the FDD connector on both sides to lock it in place.

NOTE: The FDD-cable should always be inserted with the side with the exposed edge connector in contact with the FDD connector pins.
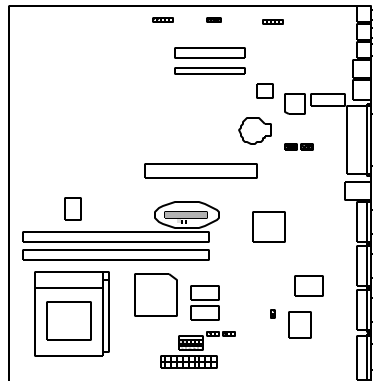
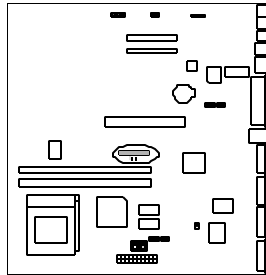**11.** Plug in the LED wires to the F_PNL connector
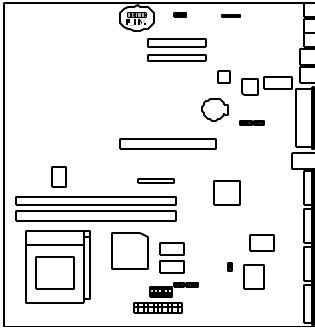
12. Push the front panel chassis all the way into the main chassis and secure the two screws to fix the front panel chassis in place.

Installing the CD-ROM Drive

To install a CD-ROM drive, refer to the following steps:

1. Remove the front panel chassis (see previous section "**Removing the Front Panel Chassis**").

2. Disconnect the FDD-cable of the slim floppy disk drive from the mainboard by pulling up both sides of the 26-pin block connector to release it.


3. Pull out the LED wires plugged to the F_PNL connector.
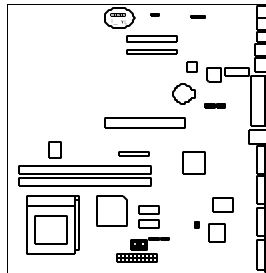
4. Attach the L-shaped metal bracket by matching the two screw holes of the metal bracket to the first and last screw holes of the group of four screw hole on the right underside portion of the slim CD-ROM drive and securing the two screws to it.
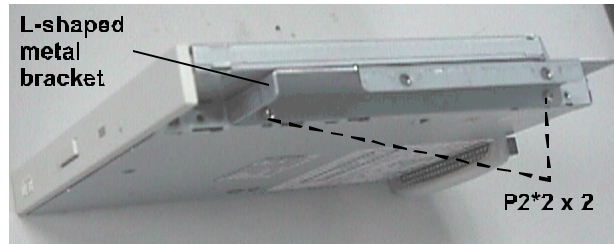
5. In case this is the first time that a CD-ROM drive is to be installed into the system, remove the front panel plastic cover of the CD-ROM drive bay by pushing outwards from the inside with your fingers.

6. Slide the new slim CD-ROM drive on to the CD-ROM drive holder, from the inside of the front panel chassis towards the front, and secure the four screws (two mini-screws on one side first and then the two regular-size-screws on the other) to hold the CD-ROM drive in place.
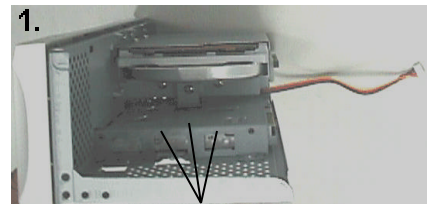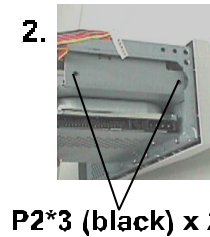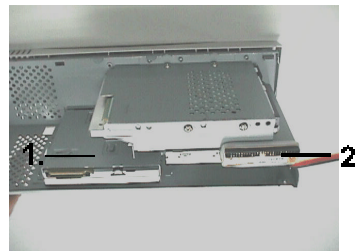
**7.** Attach the CD-ROM drive adaptor to the CD-ROM drive adaptor connector located at the back of the slim CD-ROM drive, by (a.) first securing the copper hexagonal bolt to the rear of the slim CD-ROM drive by hand and, (b.) securing the two mini-screws from the CD-ROM drive adaptor into the copper hexagonal bolt with a mini-screwdriver.

8. Connect one end of the CD-ROM drive ribbon cable onto the slim CD-ROM drive, taking care to align the ribbon cable with the red stripe on to pin-1 of the CD-ROM drive adaptor connector.
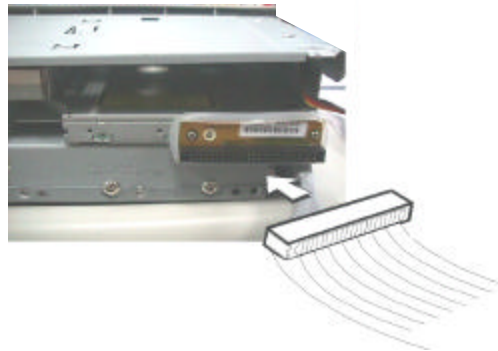
9. Place the front panel chassis slightly in front of the main chassis.

10. Connect the other end of the provided CD-ROM drive ribbon cable onto the SECONDARY connector on the mainboard, taking care to align the ribbon cable with the red stripe on to pin-1 of the SECONDARY connector.
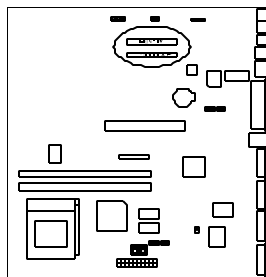
11. Connect the FDD-cable of the slim floppy disk drive to the 26-pin FDD block connector on the mainboard by inserting the edge connector and press down the FDD connector on both sides to lock it in place.
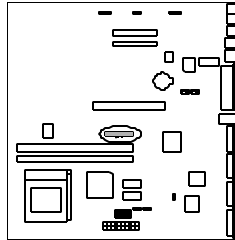
NOTE: The FDD-cable should always be inserted with the side with the exposed edge connector in contact with the FDD connector pins.

12. Plug in the LED wires to the F_PNL connector.
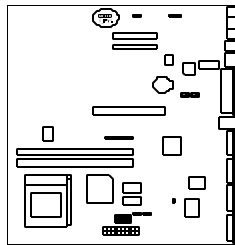
13. Push the front panel chassis all the way into the main chassis and secure the two screws to fix the front panel chassis in place.

Re-installing the Chassis Cover

To re-install the chassis cover follows these steps:

1. Push the Ultra DMA cable that wrapped with the power cable tightly close to the device holder as the arrow pointed.
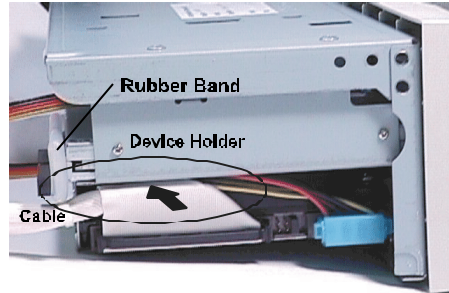
2. It will avoid the cable being scratched and damaged by the chassis edge while installation.
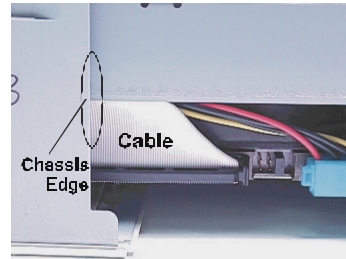
3. Place the chassis cover onto the chassis until it is positioned in place.
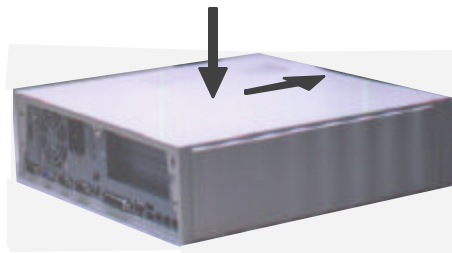
4. Fasten the three screws to secure the chassis cover with a Philips screw-driver.

**Chapter 3
Making
Upgrades
Easy**
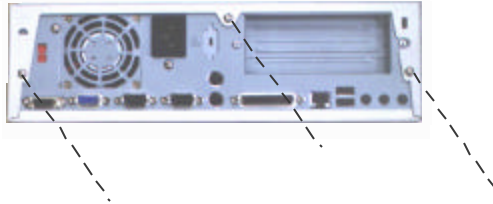
5. Set the correct power supply voltage by adjusting the power supply voltage switch.

6. Remove the power supply switch range label. Plug the power cord.

Power Supply
Voltage Switch

Power Supply
Switch Range
Label
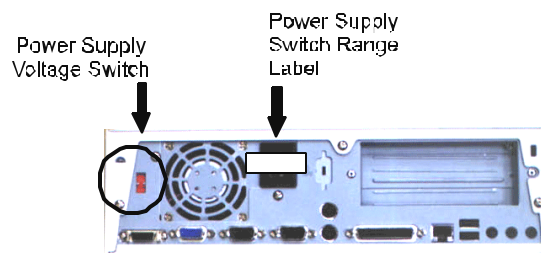
BIOS Setup

The mainboard comes with an AMI BIOS chip that contains the ROM Setup information of your system. This chip serves as an interface between the processor and the rest of the mainboard's components. This chapter explains the information contained in the Setup program and tells you how to modify the settings according to your system configuration.
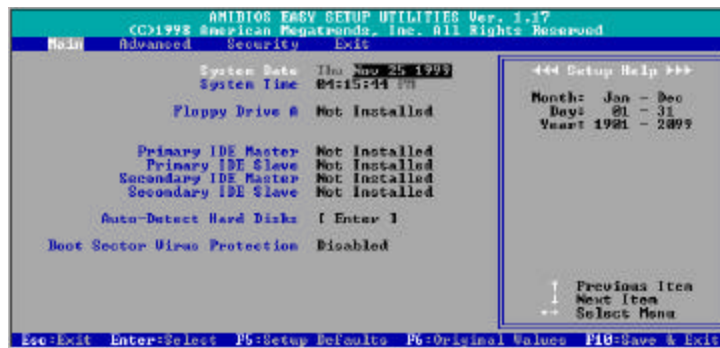
Main Setup

The Main Setup screen is displayed above. Each item may have one or more option settings. It allows you to change the system Date and Time, IDE hard disk, floppy disk drive types for drive A: .

Auto-Detect Hard Disks

Allows the system BIOS to detect all hard disk parameters automatically.

Boot Sector Virus Protection

When Enabled, a warning will be giver when any program or virus sends a Disk Format command or tries to write to the boot sector of a hard disk drive.

Advanced Setup

Advanced Setup options are displayed by choosing item from the AMI BIOS Setup main menu. All Advanced Setup options are described in this section.

Advanced CMOS Setup

Advanced Chipset Setup
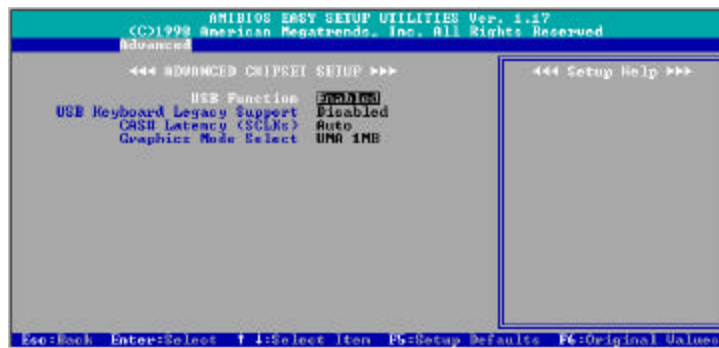
Power Management Setup
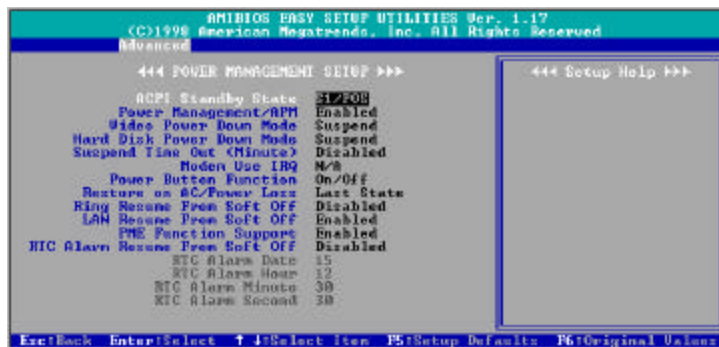
PCI/Plug and Play Setup
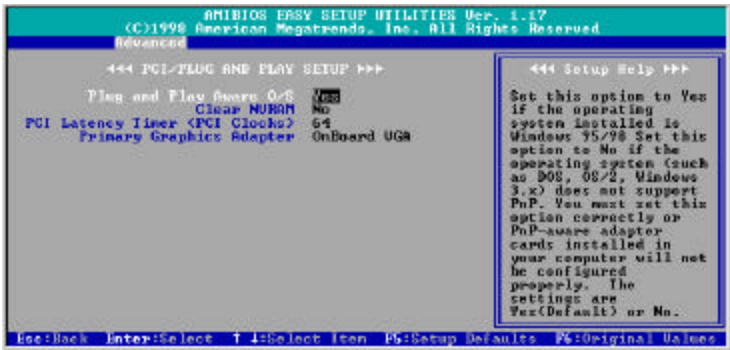
Peripheral Setup

Hardware Monitor Setup

This feature allows end users and technicians to monitor the data provided by the LDCM function of this board.

Security Setup
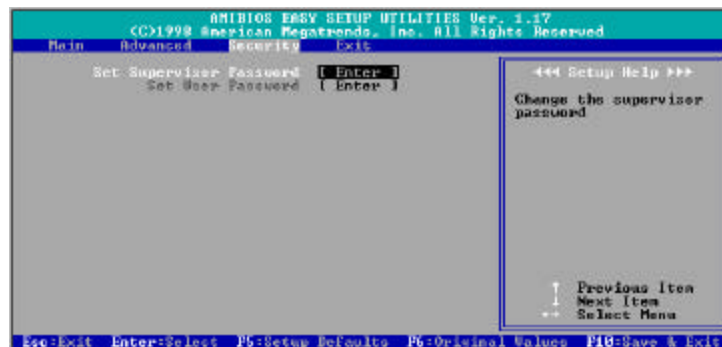
Exit Setup

Troubleshooting

The system has passed through a series of rigorous quality assurance tests to guarantee reliable performance. However, the new computer is a complicated piece of equipment and as such may malfunction if used incorrectly or when one of its components fails. This chapter attempts to anticipate potential problems that may crop up during the day-to-day use of the computer. Included are important tips and information you will need to help locate and solve problems you encounter.

In general, troubleshooting involves an organized system of approach to problem solving. Try to isolate the problem and identify the defective device (hardware) or improper setting (software). Upon encountering a problem, the first thing to do is perform a thorough visual inspection of the computer. If none of the indicators are lit and you cannot hear the fan, then the computer is probably not receiving power. Make sure the power cord is plugged in. If using a power strip or surge protector, ensure that these devices are turned on.

An improperly connected cable can cause a problem. Make sure all peripherals such as the mouse and keyboard are properly connected to their respective ports. Ensure that none of the connectors' pins are bent or broken. Check all cables connected to the computer. If any are cut, frayed, or damaged in any way, replace them right away. Never use a damaged cable. A damaged cable is not only a fire hazard; it may also cause a short circuit, resulting in irreparable damage to the computer.

Determining Problem Causes

To facilitate troubleshooting when encountering problems while operating the computer, it is important to find out if the cause is software-related or hardware-related. It is suggested that you record the observations of events immediately prior to and during the time you encounter the problem. If the problem is software-related, consult the software manual of the application you are using. If the problem is hardware-related, it may be due to improper installation and/or incorrect configuration. If it is due to improper installation, then any or a combination of the following corrective procedures should solve the problem:

■ Check the installation or connection to see if it is correctly done or firmly in place.
■ Check if the installation calls for a change in jumper settings or DIPswitch settings.
■ Read the document accompanying the hardware option you installed for any special instructions or troubleshooting actions.

The examples that follow provide useful tips and information that will help to isolate and solve some of the more common problems encountered. These examples are presented in a question and answer format. If the problem persists after trying the suggested solutions, contact the dealer or a qualified service technician.

**Chapter 5
Troubleshooting**

Booting up

Question: System reports an error message that is not related to setup problems.

Answer: +Your system may have a virus, which has infected the master boot record. Run virus-checking software to find and remove the virus.

+Write down the message and call Technical Support.

Question: System prompts for a password on boot.

Answer: +Boot password has been enabled. Type in your password to continue. If you have lost the password or the password has been enabled by accident, call Technical Support.

Question: The computer provides a message indicating that the operating system is missing.

Answer: + The computer is not recognizing the hard drive as the boot drive. The hard drive type might not be properly specified. Run the Setup program and enter the Main menu. Check the hard drive information. If it does not look correct, run the autodetect option.

+Re-install the Windows 98 operating system. Do not do this until you have exhausted other options. Reloading Windows 98 will also mean reloading your Windows 98 programs, since the new installation will not have the information for the Windows 98 programs that you have installed on your system to provide the drivers for your various hardware components. Follow the directions in the menu that pops up when the system has booted from the Recover CD to install Windows 98 in the original configuration for your PC. If you have a full back up of your drive, you should then be able to restore your programs and files to the drive from your backup.

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Troubleshooting

43

+If the problem recurs or persists, contact Technical Support.

Question: Computer cannot locate the device for starting the computer.

Answer: +Run the Setup program. Make sure that the A: Drive is set for the appropriate drive (usually 1.44MB, 3.5") in the "Standard CMOS Setup" menu of the Setup program.

+Make sure the C: drive is set for the right drive configuration in the "Standard CMOS Setup" menu of the Setup program.

Question: Computer does not come on when the power switch is turned on.

Answer: +Be sure the plug is firmly seated in the power strip or outlet.

+Be sure that the power strip is on.

+Be sure that the AC Voltage setting is correct.

+Be sure that the outlet is working.

Question: No video or system hangs-up.

Answer: +Be sure monitor is plugged into the outlet or surge protector.

+Be sure Monitor power is on.

+Check to be sure that connections between the monitor and the computer are secure.

+If you are an advanced user, you might also check to see if any other cards are using the same addresses.

Question: Cannot boot from floppy disk.

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Answer: +Boot sequence might be set to access the A: drive first. Enter the Setup program and check the Bootup Sequence option in the Advanced CMOS Setup menu.

+Floppy does not have the necessary files to properly boot. Try another bootable diskette.

+Floppy is defective. Throw it away.

+Clean the magnetic head to the floppy disk drive.

+Make sure FDD cable is well connected on both M/B side and FDD side.

Question: Cannot boot from CD.

Answer: +Boot sequence might be set to access the C: drive first. Enter the Setup program (see Online Manual) and check the BootUp Sequence option in the Advanced CMOS Setup menu.

+CD-ROM does not have the necessary files to properly boot. Try another bootable CD-ROM.

+CD is damaged. If this is the CD Pro that came with your PC, contact Technical Support about obtaining a replacement.

+Make sure CD-ROM cable is well connected on both M/B side and CD-ROM side.

Question: Windows 98 will not boot properly.

Answer: +If Windows indicates a registry problem, rebooting might clear it up. Windows keeps up to 6 copies of the registry and will try restoring from a backup if it encounters registry problems.

+Interrupt the boot process by hitting the [F8] key just after the unit completes the POST (Power On Self-Test). This will bring up a menu asking you how to boot the system. Select "Command Prompt" from the menu and

hit enter. When you have a C: prompt, run ScanDisk (by typing "scandisk") and/or ScanReg (by typing "scanreg") to check for problems with your files or with the Windows Registry. If problems are found. Follow the suggestions for correcting them.

+Interrupt the boot process by hitting the [F8] key just after the unit completes the POST (Power On Self-Test). This will bring up a menu asking you how to boot the system. Select "Logged" (to keep a log of the boot that you can later check), "Safe Mode" (Which will load with minimal drivers and can provide a means of accessing software for diagnosing your problems) or "Step-by step confirmation" (to check each command and locate the step causing the problem). If you need further assistance, check your Windows 98 documentation or check Microsoft's web page for technical assistance.

Video problems

Question: Video flicker

Answer: +Flicker is caused by a low video frequency. If you have flicker, you may need to change your video resolution to one that your monitor can support at a higher frequency (preferably > 72MHz).

Question: Scrambled video

Answer: +This is usually a result of selecting a frequency that your monitor cannot support.

Question: Screen display is small.

Answer: +Use a lower vertical refresh rate. If the refresh rate is too high, some monitors will compensate by making the image smaller.

Problems with Disk Drives

Question: Floppy disk is not working correctly.

Answer: +Setup configuration is incorrect. Check the Setup program. In the "Standard CMOS Setup" menu, check to see if the Diskette Drive is set for proper drive type.

+Be sure the diskette is properly installed in the drive.

+Be sure the diskette is properly formatted.

Question: Diskette will not eject from the drive.

Answer: +Label may have become detached and is blocking the ejection. Visually inspect the slot to see if you can see any obstruction by the label. Call Technical Support if you see an obstruction.

+Metal cover on the diskette has been bent. Call Technical Support.

Keyboard Error

Question: When I turn on the computer, a keyboard error message is displayed and the keyboard does not work. Is the keyboard broken?

Answer: There is probably nothing wrong with the keyboard. It may not be properly connected to the keyboard port. Turn off the computer and check the keyboard connection. Ensure that the keyboard connector is firmly seated in the keyboard port.

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Troubleshooting

The Mouse Does Not Work

Question: The mouse does not work; is it broken?

Answer: It is doubtful that the mouse is broken. It just may not be connected or configured properly. First, turn off the computer and check the mouse connection. Make sure the mouse connector is firmly seated in the mouse port. If the problem persists, the mouse driver may not be installed or properly configured. The mouse requires a device driver to be installed and loaded during bootup. Two separate device drivers are required for operation under DOS and Windows environment.

The Screen is Blank

**Chapter 5
Troubleshooting**

Question : I know the computer is on but the screen is blank. Is the monitor broken?

Answer: Probably not. Most likely the contrast or brightness controls are improperly adjusted. Try turning up the brightness. If after trying this, the monitor is still blank, try rebooting the computer by pressing the Crtl + Alt + Delete keys. If this does not solve the problem, turn the computer off, wait five seconds, and then turn it back on. If the problem persists after trying all of these suggestions, turn off the computer and consult the dealer or a qualified service technician.

The Monitor Displays Abnormal Patterns

Question : I changed the VGA device driver under Windows. The monitor is now displaying abnormal patterns. What did I do wrong?

Answer: You have installed a video device driver that is not supported by the computer's video subsystem. Please press F8 immediately after you see "Starting Windows." On system boot and then select "Safe Mode" and press enter. After entering safe mode, remove the driver in problem and reinstall the correct display driver and reboot. Please contact your dealer for information on upgrading you driver.

Problems with Sound

Question: No sound.

Answer: +Be certain the power is on for the speakers. Make sure that the unit is hooked up to an AC adapter and the power button is ON.

+Use only the AC adapter provided. Check the connections between the computer and the speakers.

+Be certain there is output from the audio device, Remove the plug from the Audio Device, turn the speaker to maximum volume and touch the tip of the plug. You should hear a hum or buzz coming from the speakers. If you do, the speakers are working. Check the Audio Device to locate the problem.

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+Are headphones plugged into the headphone jack? Headphones plugged into the speaker's headphone jack will block sound from the speakers. Remove the headphones to restore sound to the speakers.

+Check software volume controls in windows. Check volume controls on speakers or CD-ROM drive if applicable.

Question: Sound coming from only one channel.

Answer: +Check connections to the Audio Device and to the speakers. Make sure cables are plugged in completely, and that the connections are correct. See your speaker documentation for information on the connections.

Question: Buzzing or humming sound.

Answer: +Check volume, tone and mixer controls on software. Follow the manufacturer's set up instructions for these controls.

+Double-click on the speaker icon on your taskbar. If all audio settings are at maximum volume, try reducing them to about ¾ volume.

Question: My music CDs won't play.

Answer: +Under Windows 98, the audio program should start up as soon as an audio CD is detected in the drive. Make sure the CD Player program is running in Windows 98. If it is not, then start the program (Start / Programs / Accessories / Multimedia / CD Player).

+Check the volume level: double-click on the speaker icon on the taskbar to be certain that the system volume and CD volume are both turned up (and that neither is muted).

Question: I can't hear sound on my headphones.

Answer: +Check the volume level: double-click on the speaker icon on the taskbar to be certain that the system volume and other volume settings are all turned up.

+Are the headphones connected? Make sure the cord is plugged into the external speaker jack. This is the light green jack.

+Are you using the correct connector? The PC's external speaker connector is compatible with a 3.5mm stereo audio plug. If you are using a different plug, it may not be compatible.

+Inspect the cord for wear or damage. Usually you will find this at ends of the cable where connectors are attached. If you find damage to the cord, repair or replace the cord, then try again.

Question: Microphone volume is too low.

Answer: +If you have connected a microphone, make sure that it is securely connected. If it has its own volume controls, check them to be sure that they are not set too low.

+Double-click on the speaker icon on the taskbar. When the mixer appears, click on Options and then Properties. When the mixer property window appears, click on the button besides Recording and then click OK to view the recording mixer. Check to see that the microphone settings are correct. Click on the Advanced button under the microphone balance. When the dialogue box pops up, place a check in 2+20db Gain setting.

Chapter 5
Troubleshooting

Miscellaneous Problems

Question: My Floppy Drive won't save my work.

Answer: +Is the write-protect tab on the floppy disk open? The 3.5-inch disk used in the PC floppy disk drive feature a write-protect tab that must be closed to allow you to save to the disk. If there is a hole on the left-hand side of the disk, pull the disk completely from the drive and turn it over. You should find a sliding tab between the hole and the edge of the disk. Slide the tab closed to save files on the disk.

+Have you formatted the disk? Some new disks are not formatted for use with PC. If your disk is not formatted, or if the disk is formatted for use with another type of computer, Windows 98 will notify you. Format the floppy disk by clicking on My computer, then right clicking on the 3 ½ Floppy icon and selecting Format.

+Is the disk already full? If you have saved files on this disk before, you may have reached the disk's capacity. If the disk is full, use a different disk or remove existing files from the disk to make room for other files that you want to save.

Question: My Floppy Drive won't read my disk.

Answer: +Is the disk fully inserted into the disk drive? Disks only fit into the drive one way. As you insert the disk, the circular metallic object on the disk must face down, the sliding hatch must face to opening of the computer's drive, and the notched corner of the disk must face toward the front side of the computer. Make sure that

the disk springs into position. The drive's eject button should spring outward when the disk is properly inserted.

+Have you formatted the disk? Some new disks are not formatted for use with your PC. If your disk is not formatted, or if the disk is formatted for use with another type of computer, Window 98 will notify you. Format the floppy disk by clicking on My computer, then right clicking on the 3 ½ Floppy icon and selecting Format.

Question: The characters on the screen repeat while I type.

Answer: +You may be holding the keys down for too long while you type. You can configure the keyboard to wait longer before the auto repeat feature starts. To adjust this feature, click on Keyboard icon in the Control Panel (Start/settings/control Panel) in Windows 98. A dialogue box appears with adjustable settings for the keyboard.

+Check to be certain the keyboard is clean. Dirt under the keys could cause them to stick.

Question: The pointing device that I use is hard to operate. It moves faster or slower than I'm used to.

Answer: +Try adjusting the pointer's motions settings. Click on the Mouse icon in the Control panel (Start/Settings/Control Panel) and adjust the settings as indicated in the dialogue box that comes up.

Question: The point indicator on the display disappears when I move it quickly across the screen.

Answer: + Does the mouse move faster than you are used to? You can adjust the pointing device's speed (see pointing device problem above).

+Move the pointing device more slowly across the screen. Rapid pointer movement can cause the pointer to sometimes disappear when the PC is using resources to

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Troubleshooting

save a file or print a document. Usually the Pointer's characteristics will return to normal after the PC finishes tasks that consume its resources.

+Adjust the mouse cursor size or add trails. Clicking on the Mouse icon in the Control Panel (Start/Settings/Control Panel) and adjusting the settings as indicated in the dialogue box that comes up can do this.

Question: My printer is not working.

Answer: +Make sure the printer is ready to print. Check the printer's power cable to see that it is properly plugged into the printer and the electrical outlet. Also see that the printer's communication cable is connected properly to the PC's LPT1 Port and to the back of the printer.

+If the printer is turned on, there should be a power indicator that illuminates. There is also usually an indicator showing that the printer is "ready" or "on-line." If this indicator is not illuminated. Check to see that the printer has paper, and that the paper is aligned properly in the paper tray.

+Some printers require communication with the system when you boot up. If you connected your printer after starting your PC, try restarting the computer.

+If you have a parallel device with a pass-though (such as a scanner or external drive) between your PC and your printer. Make sure that the connections are secure and that the parallel device is on (many pass-through devices require power to allow parallel signals to pass through).

+The printer port may not be enabled. Go into the Peripheral Setup Menu of the BIOS Setup program to be sure that the port is set to "Auto" or to a specific address (make sure that the address does not conflict

with any other devices).

+You may be using the wrong cable or the cable may be faulty. If your cable is the incorrect kind or faulty, contact you're local computer store to obtain another. If you take the cable to the supplier, they might be able to test it to see if it is working.

+The printer driver in the operating system may not be set correctly. Check the Printers window in My Computer to be certain that your printer has been set up. If not, follow the directions in the Online Manual for setting up the printer. If the printer is set up, right click on its icon and select Properties in its popup menu. You can review the information for this printer to be certain that is directed to the right port and is using the correct driver for your printer.

Note: If you don't see your printer listed in the Windows 98 printer list, chances are that your printer's manufacturer can provide you with a Windows 98 Driver disk. Many printers from the same vendor may have similar characteristics and will be able to work with one of the Windows 98 standard drivers. If you don't see your printer listed, contact the printer's manufacturer to see if you can get a Windows 98 Driver, or use one of the existing ones in its place.

**Chapter 8
Troubleshooting**

Question: My printer prints strange characters that are not in the document that I am trying to print.

Answer: +This is often the result of garbage in the printer's memory buffer. Cancel the printing job (see Windows 98 documentation or the documentation that came with your software application), then turn off the printer's power switch. Turn the printer back on and try to print the document again.

+You may not have the printer drivers set up properly. See the problem above for information on printer drivers.

Problems with Software

Question: Software error messages

Answer: +Software error messages are returned from your operating system (Windows 98) or your application programs. These typically appear after the system has been booted, or during the running of an application program. If you receive this type of message, you should check your manual for the operating system and/or application program for help in diagnosing and correcting the problem.

**Chapter 5
Troubleshooting**

BIOS-Related Errors

When BIOS detects an error during system startup or during POST (Power-On-Self-Test), the display monitor normally shows the message that tells the cause of the problem and also suggests on how to solve it. These kinds of error messages will ask you to run Setup and correct the settings in that program according to actual configuration. (Please read Chapter 4 on BIOS Setup.)

The following information lists some of the common configuration-related errors and gives the corresponding procedures to solve them.

Error Message: CMOS BATTERY HAS FAILED
Cause: The CMOS battery is no longer functional.
Action: Replace it.

Error Message: CMOS CHECKSUM ERROR
Cause: BIOS checksum of CMOS is incorrect. A weak battery may cause this.
Action: Check the battery and replace it, if necessary.

Error Message: DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER
Cause: No boot device was found.
Action: Insert a system disk into Drive A and press <**Enter>** key. If you boot from the hard disk, make sure that the controller is installed properly and all cables are correctly attached.

Error Message: DISK DRIVES OR TYPES MISMATCH ERROR – RUN SETUP
Cause: The type of disk drive installed in the system is different from that defined in CMOS.
Action: Run Setup to reconfigure disk drive type.

Error Message: DISPLAY SWITCH IS SET INCORRECTLY
Cause: Display switch on the mainboard is set at color. This message indicates a different switch setting than indicated in Setup.
Action: First, determine the correct setting; then either change the jumper setting or run Setup to re-select a proper video option.

Error Message: DISPLAY TYPE HAS CHANGED SINCE LAST BOOT
Cause: Since the last power-on of the system, the display adapter has changed.
Action: Run Setup to re-select a proper video option.

Error Message: ERROR ENCOUNTERED INITIALIZING HARD DRIVE /
ERROR INITIALIZING HARD DISK CONTROLLER
Cause: Hard disk cannot be initialized.
Action: Ensure that the hard disk controller is installed properly and all cables are properly connected. Ensure the correct hard disk type is set in the BIOS Setup.
Check that if any jumper related to the hard disk needs to be reconfigured.

Error Message: FLOPPY DISK CNTRLR ERROR / NO CNTRLR ERROR
/ NO CNTRLR PRESENT
Cause: Cannot find or initialize the floppy disk drive (FDD) controller.
Action: Ensure that the FDD controller is installed properly. If no floppy disk drive is installed, run Setup and set the Diskette Drive at NONE.

Error Message: KEYBOARD ERROR / NO KEYBOARD PRESENT
Cause: Cannot initialize the keyboard.
Action: Make sure the keyboard is attached properly and that no keys are being pressed during boot.

Error Message: MEMORY SIZE HAS CHANGED SINCE LAST BOOT
Cause: Memory has been added or removed since last bootup but system has not recognized it.
Action: Run Setup and enter the new memory size in the memory fields.

Error Message: MEMORY VERIFIES AT . . .
Cause: Indicates an error verifying a value already written to memory.
Action: Use the specified location along with the system's memory map to locate the bad chip.

Error Message: PRESS A KEY TO REBOOT
Cause: This message is displayed when an error occurs that requires you to reboot.
Action: Press any key so that the system will reboot.

**Chapter 5
Troubleshooting**

Error Message: RAM – CHECKING FOR SEGMENT . . .
Cause: Indicates an error in the RAM module.
Action: Change the malfunctioning RAM module.

Error Message: SYSTEM HALTED, (CTRL–ALT–DEL) TO REBOOT
Cause: Indicates the present boot attempt has been aborted and the system must be re-booted.
Action: Press <**CTRL**> + <**ALT**> + <**DEL**> keys simultaneously.

**Chapter 8
Troubleshooting**

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System Specifications

Product Features

Key features of the **SAHARA 3810** System include:

■ Intel 810E chipset with 82810AA

■ Processors
Intel FC-PGA Coppermine 533a~733MHz, Celeron PPGA 366~533MHz
processors

■ Onboard LAN Controller
Intel 82559 LAN chip on board plus. Alert on LAN II ASIC. (Option)

■ Onboard VGA Controller (DFP port option)
Integrated DVMT Intel 810E embedded in Intel 810E
controller with UMA or onboard 4MB display cache.

■ Onboard Audio Controller
Embedded in Intel 810E, codec: Analog Devices 1881.

■ BIOS (Basic Input / Output System)
AMI BIOS with 2MB/4MB Flash EEPROM, DMI 2.0 compliant

■ Floppy Disk Drive
3.5-inch Slim 1.44MB (Megabytes) capacity

■ Hard Disk Drive (Optional)
3.5-inch Ultra DMA33/66 S.M.A.R.T.

■ System Memory
Supports up to 512MB SDRAM via two 168-pin DIMM sockets

■ Cache Memory
128KB/256KB built-in on CPU-die.

■ Riser Card
Two PCI slots with chassis intrusion switch.

■ Input/Output Interface
Two serial ports, one parallel port with ECP/EPP, two USB ports, one
RJ45 LAN connector, two PS/2 connectors, one D-sub 15-pin female
VGA port, one optional IrDA port, one Mic-in; one Line-in; one Line-out
for Audio, one optional DFP port

■ CD-ROM Drive
12.7mm Slim 24X CD-ROM drive.

Technical Specifications

■ Dimensions
310(L) x 300(W) x 88(H) mm

■ Power Supply
115/230 VAC, 90 Watt

■ Environment Air Temperature
Operating: 5 $^{\circ}$C to 35 $^{\circ}$C / Storage: –20 $^{\circ}$C to 65 $^{\circ}$C

■ System Operating Environment
The recommended system operating room temperature is between 5 $^{\circ}$C
and 35 $^{\circ}$C. In the event that the system is to function as a workstation or
server, it is imperative that periodic inspection of the CPU fan and the
power supply fan be undertaken. Please consult the local dealer for more
information.

Appendix A
System
Specifications

Installation Procedures

The **SAHARA 3810 System** has several user-adjustable jumpers on the mainboard that allow you to configure the system to suit your requirements. This chapter contains information on the various jumper settings on the mainboard.

Item	Function	Page
JP1	BATTERY	67
SW1-1, SW1-2	CPU Internal Frequency Selection:	68
SW1-3	CPU Safe mode strapping	68
SW1-4	BIOS Flash Function	68
SW1-5	Clear CMOS	69
SW1-6	Clear Password	69
DIMM1/2	DIMM Memory Module Support	70
RISER	PCI Slot for the Riser Card	74
FDD	Floppy Disk Drive Connector	78
POWER	Power Supply Connector	78
CPU_FAN	CPU Fan Connector	78
PRW_FAN	Power Supply Fan Connector	79
DFP	Digital Flat Panel Monitor Connector	79
VGA	VGA Connector	79
COM1/2	Serial Port	79
MS & KB	PS/2 Mouse & Keyboard Connector	80
LPT	Printer Connector	80

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LAN	RJ45 Connector	80
USB	Universal Serial Bus Connector	80
LINE_OUT, LINE_IN,MIC_IN	Audio I/O Jacks	80
WOR	Wake-On-Ring Connector	80
WOL	Wake-On-LAN Connector	81
IR	Infrared Port Module Connector	81
PRIMARY, SECONDARY	IDE Device Connector	81
HDD_PW	Hard Disk Drive Power Connector	81
Front Panel Block Connector	Connect to LEDs/Buttons on Front Panel	81

To set up your computer, you must complete the following steps:

- Step 1 -
  Set system jumpers

- Step 2 -
  Install system RAM modules

- Step 3 -
  Install the Central Processing Unit (CPU)

- Step 4 -
  Install expansion cards

- Step 5 -
  Connect ribbon cables, cabinet wires, and power supply

- Step 6 -
  Set up BIOS software (see Chapter Four)

- Step 7 -

Set up supporting software tools (see Appendix C)

Appendix B:
Installation
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NOTE: Excessive torque may damage the mainboard. When using an electric screwdriver on the mainboard, make sure that the torque is set to the allowable range of 5.0 ~ 8.0kg/cm. Mainboard components contain very delicate Integrated Circuit (IC) chips. To prevent static electricity from harming any of the mainboard's sensitive components, you should follow some precautions whenever working on the computer:

1. Unplug the computer when working on the inside.

2. Hold components by the edges and try not to touch the IC chips,

leads, or circuitry.

3. Wear an anti-static wrist strap which fits around the wrist.

4. Place components on a grounded anti-static pad or on the bag that came with the component whenever the components are

separated from the system.

---

1). Set System Jumpers

Jumpers are used to select the operation modes for your system. Some jumpers on the board have three metal pins with each pin representing a different function. A "1" is written besides pin 1 on jumpers with three pins. To **set** a jumper, a black cap containing metal contacts is placed over the jumper pin/s according to the required configuration. A jumper is said to be **shorted** when the black cap has been placed on one or two of its pins. The types of jumpers used in this manual are shown below:


Jumper cap is shown as above

Jumpers In a Block
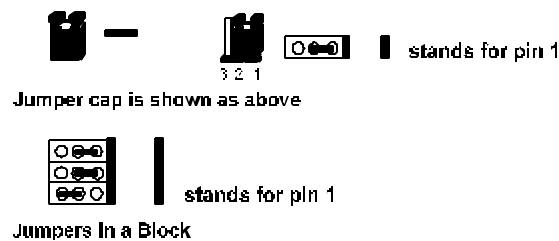
NOTE: Users are not encouraged to change the jumper settings not listed in this manual. Changing the jumper settings improperly may
adversely affect system performance.

Mainboard Layout
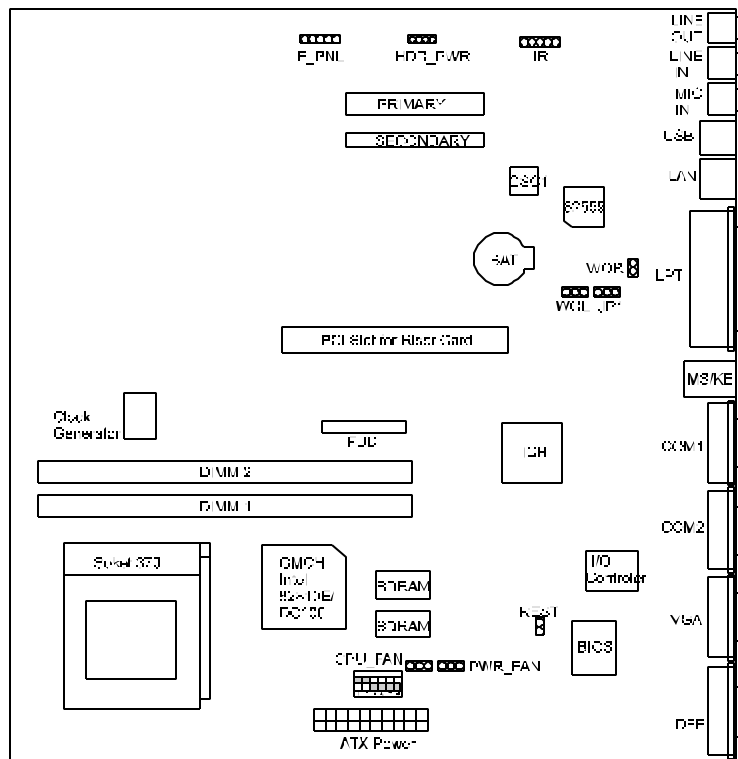
Battery: JP1

This jumper is used to tell the system if a battery installed. It is normally installed, so the default position is set to "Connect". It can be also used to temporarily disconnect the power supply from the battery to the system for the purpose of restoring CMOS settings to their default values if AC power is not connected to the system. It is used in conjunction with "CMOS Clear Function" below. Used either way as you see fit.
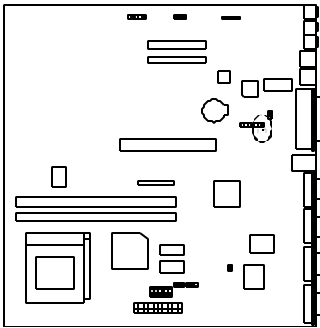
JP1	BATTERY
1-2	Connect
2-3	Disconnect

Set System Switches

These jumpers are used to set various hardware features, explained as follows.
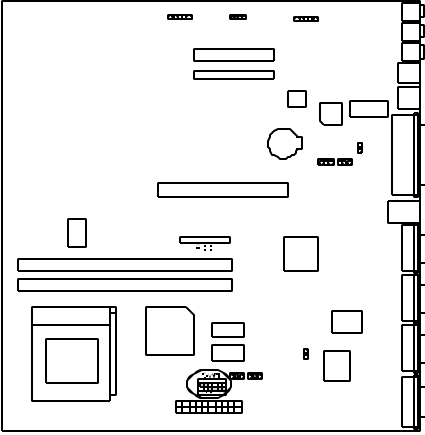
1. CPU Internal Frequency Selection: SW1-1, SW1-2

These two switches are used to decide the internal frequency of the CPU. Please set the frequency according to your CPU specification.

SW1-1	SW1-2	CPUCLK	SDRAM	PCICLK	3V66
ON	ON	66.8MHz	100.2MHz	33.4MHz	66.8MHz
*OFF	ON	100.2MHz	100.2MHz	33.4MHz	66.8MHz
OFF	OFF	133.0MHz	100.2MHz	33.4MHz	66.8MHz

* Default

2. CPU Safe mode strapping: SW1-3

Your system will be unstable under some certain circumstances, You can then set the jumper to enable to restore to the fixed clock multiplier of two. After will your machine the system reverts to its normal setting.

SW1-3	CPU Safe mode strapping
ON	Enable (2X Only)
*OFF	Disable (Default)

3. BIOS Flash Function: SW1-4

This jumper is used to allow software update of your system BIOS.

SW1-4	BIOS Flash Function
*ON	Enable (Default)
OFF	Disable

4. Clear CMOS: SW1-5

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The CMOS RAM is powered by the onboard button cell battery. To clear the RTC data: (1). Turn off your computer, (2). Enable this feature by setting SW1-5 to On position, (3). Turn on your computer, (4). Turn off the computer, (5). Disable the Clear CMOS feature, (6). Turn on the computer. (7). Hold down the Delete key when boots and enter BIOS Setup to re-enter user preferences.

SW1-5	CMOS Clear Function
ON	Enable
*OFF	Disable (Default)

5. *Clear Password: SW1-6*

This switch allows you to enable or to disable the password settings. You may need to adjust switch if you forget your password. To clear the password setting: (1). Turn off your computer, (2). Enable this feature by setting SW1-6 to On position, (3). Turn on your computer, (4). Turn off your computer, (5). Disable the Clear Password feature by setting SW1-6 to Off position, (6). Turn on your computer, (7). Hold down the Delete key when boots and enter BIOS Setup to re-enter user preferences.

SW1-6	Password Clear Function
ON	Enable
*OFF	Disable (Default)

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2). Install RAM Modules

SDRAM

The working space of the computer is the Random Access Memory (RAM). The system cannot act upon data unless it is loaded into RAM. When more memory is added, the working memory of the computer is larger, thereby increasing total performance. The mainboard RAM is comprised of two 168–pin Dual In–line Memory Modules (DIMMs). Each DIMM socket is able to support up to 256MB lightning-fast SDRAM.

SDRAM is an advanced new memory technology that helps boost overall system performance with its ability to synchronize all operations with the processor clock signal. This makes the implementation of control interfaces easier, and speeds up column access time. SDRAM features an on–chip burst counter that can be utilized to increment column addresses for very fast burst access, which means that SDRAM allows new memory access to be initiated before the preceding access has been finished.

Before making DRAM upgrades you should verify the type and speed of the RAM currently installed from your dealer. Installing mixtures of RAM types other than those described in this manual will have unpredictable results.

The board supports Intel socket 370 CPU at 66/100 Front Side Bus Frequency with:

- Synchronous Host/DRAM clock scheme: 66/100, 100/100MHZ (in the future)
- Asynchronous Host/DRAM clock scheme

RAM Module Configuration

The mainboard provides two onboard DIMM sockets allowing 3.3V (unbuffered) SDRAM DIMM modules. Either 16, 32, 64, 128 or 256MB DIMM can be installed on these two sockets. The maximum total memory supported is up to 512MB.

| Socket	Acceptable Memory Module		Total Memory
1	16/64/128/256MB 168-pin 3.3V SDRAM	x1	
2	16/64/128/256MB 168-pin 3.3V SDRAM	x1	

Total System Memory allowed up to 512MB

NOTE: This mainboard supports DIMMs with PC100. ECC memory and parity check is not supported.

Install DIMMs

SDRAM DIMM modules have different pin contact on each side and therefore have a higher pin density. Complete the following procedures when installing DIMMs:

NOTE: The notch on the DIMM module will shift between left, center, or right to identify the type and also to prevent the wrong type from being inserted into the DIMM slot on the board. Ask your retailer for the specifications before purchasing.

Appendix B
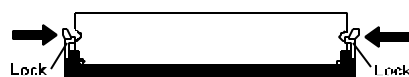Installation
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1. Locate the DIMM slots on the mainboard. (See the following figure.)
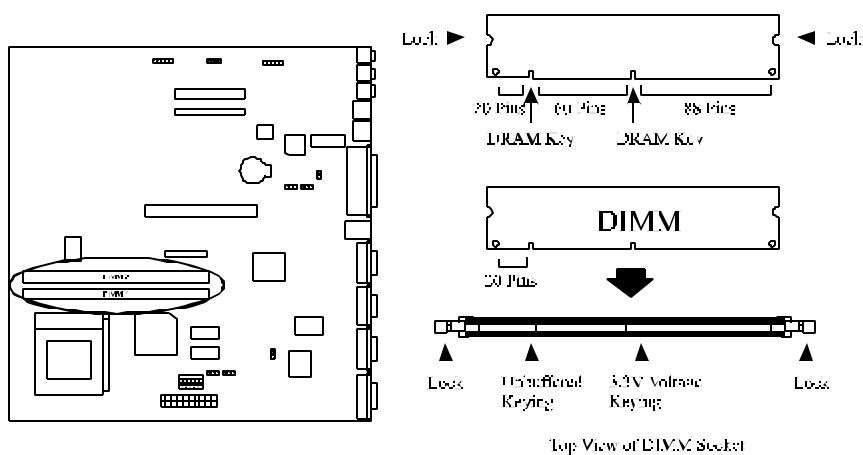
2. Install the DIMM straight down into the DIMM slot with both hands.

3. The clip on both ends of the DIMM slot will close up to hold the DIMM
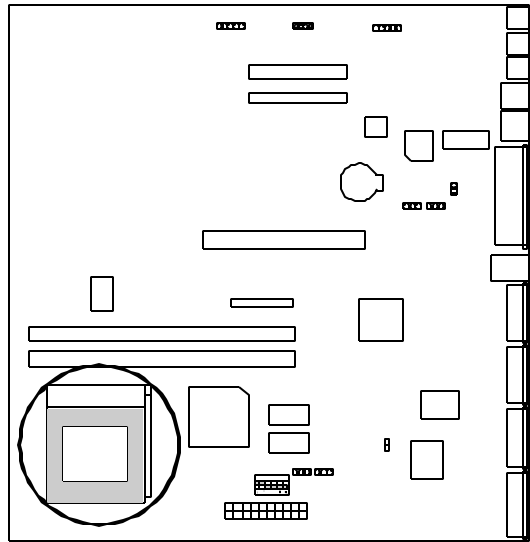   in place when the DIMM touches the slot's bottom.

Remove DIMMs

Press the clips with both hands to remove the DIMM.

3). Install the Central Processing Unit (CPU)

The CPU module resides in the Zero Insertion Force (ZIF) PGA370 socket on the motherboard.



To install the CPU, do the following:

1. Lift the lever on the side of the CPU socket.
2. Handle the chip by its edges and try not to touch any of the pins.
3. Place the CPU in the socket. The chip has a notch to correctly locate the chip. Align the notch with pin one of the socket. Pin one is located in the blank triangular area. Do not force the chip. The CPU should slide easily into the socket.
4. Swing the lever to the down position to lock the CPU in place.

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4). Install Expansion Cards

NOTE: Make sure to unplug the power supply when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both the mainboard and expansion cards.

The mainboard features one 32-bit PCI bus expansion slot.
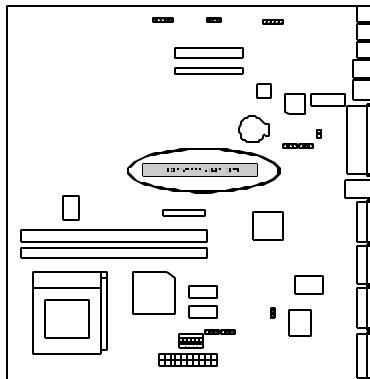

This section describes how to connect an expansion card to the system's riser card. An expansion card is a printed circuit board that, when connected to the mainboard, allows you to increase the capabilities of the system. For example, expansion cards can provide video and sound capabilities.

NOTE: Always turn the system power off before installing or removing any device. Always observe static electricity precautions. See "Handling Precautions" at the start of this manual.

To install an expansion card, follow the steps below:

1. Remove the computer chassis cover (see Chapter 3 Removing the Chassis Cover and locate the riser card on the PCI expansion slot (SL1).
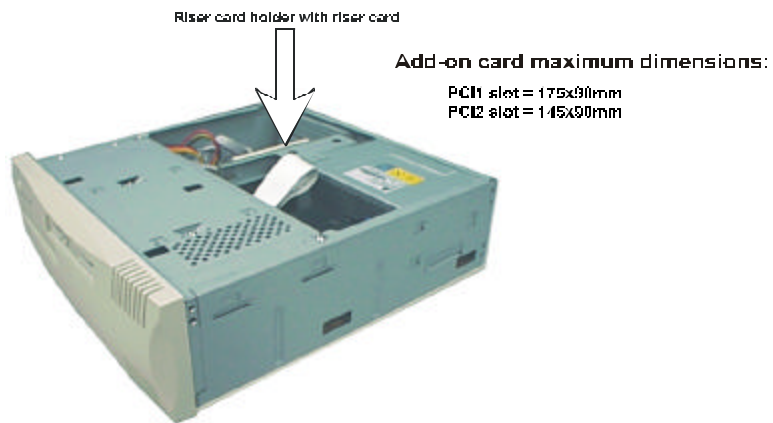
2. Remove the corresponding slot cover from the computer chassis. Unscrew the mounting screw that secures the slot cover and swing open the slot holder securing plate prior to pulling the slot cover out from the computer chassis. Keep the slot cover mounting screw nearby.

3. Read the expansion card documentation on any hardware and software settings that may be required to setup the specific card.

4. Set any necessary jumpers on the expansion card.

5. Select an empty expansion slot on the riser card.

6. Holding the edge of the peripheral card, carefully align the edge connector with the expansion slot.

7. Push the card firmly into the slot. Push down on one end of the expansion card, then the other. Use this "rocking" motion until the add–on card is firmly seated inside the expansion slot.

8. Swing close the slot holder securing plate and secure the board with the mounting screw removed in Step 2. Make sure that the card has been placed evenly and completely into the expansion slot.
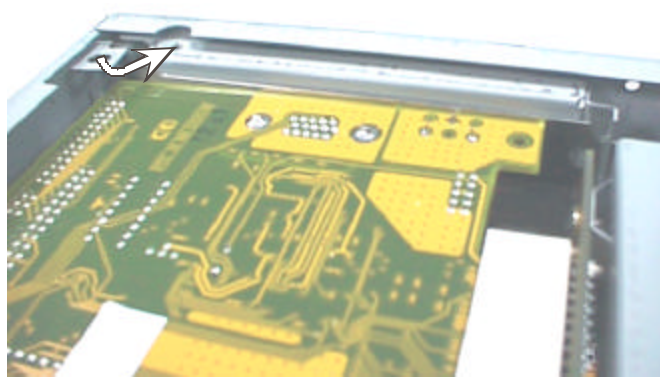
9. Replace the computer system's cover. (See Chapter 3 Re-installing the Chassis Cover.)

10. Setup the BIOS if necessary.

11. Install the necessary software drivers for the expansion card.
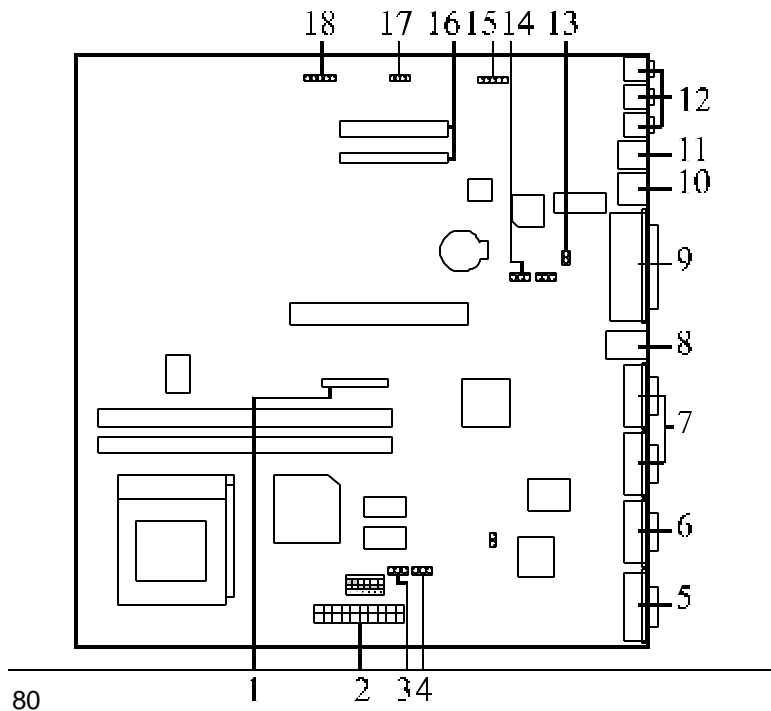
Appendix B:
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5). Connect Cables and Power Supply

Connectors

> **NOTE:** Some pins are used for connectors or power sources. These are clearly separated from jumpers. Placing jumper caps over these will cause damage to the mainboard.

Ribbon cables should always be connected with the red stripe on the Pin 1 side of the connector. The four corners of the connectors are labeled on the mainboard. Pin 1 is the side closest to the power connector on hard drives and floppy drives.

Connectors allow the mainboard to link electronically with other parts of the system. Some malfunctions encountered may be caused by loosed or improper

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connections. Ensure that all connections are in place and firmly attached.

1. Floppy Diskette Drive Connector: FDD

This 26–pin block connector connects to your slim floppy disk drive using the FFC-cable that is provided with this mainboard. Insert one end of the edge connector and press down the FDD connector on both sides to lock it in place. After connecting the single end to the mainboard, connect the other end to the floppy drive. As a precaution, always place the side with adhesive backing facing the EISA slot.

> **NOTE:** The FFC-cable should always be inserted with the side with the exposed edge connector in contact with the FDD connector pins.

2. Power Supply Connector: POWER

This 20-pin male block connector is connected to the power supply. The plug from the power supply will only insert in one orientation because of the different hole sizes. Find the proper orientation and push down firmly making sure that the pins are aligned.

3. CPU Fan Connector: CPU_FAN

This connector is linked to the CPU fan. When the system is in suspend mode, the CPU fan will turn off; when it reverts back to full–on mode, the fan will turn back on. Place the heatsink on top of the cpu, then extend the right side of the metal clip and press it down to click into the notch on the edge of the socket base. After it's firmly secured extend the left side of the metal clip and click it into the notch on the left edge of the socket base. Then connect the heatsink power connector. When installing the FC-PGA heatsink, be sure to clip on the outside edge first.

Fig.1 PPGA
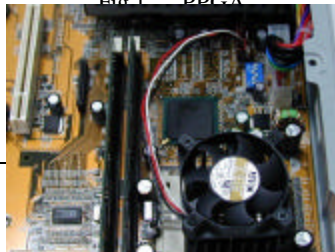
> **NOTE:** Without sufficient air circulation, the CPU cartridge may overheat and cause damage to both the CPU cartridge and the mainboard.
> Damage may occur to the mainboard and/or the CPU fan if these pins are incorrectly used. These are not jumpers, do not place jumper caps over these pins.

4. Power Supply Fan Connector: PWR_FAN (Option)

This 3-pin male connector is connected to the power supply. It monitors the cooling fan of the power supply to prevent the occurrence of the overheating of the system.

5. Digital Flat Panel Monitor Connector: DFP (Option)

The connector is linked to the DFP monitor by a cable. Your DFP monitor must be TFT type and supports EDID 2.0 or above.

6. VGA Connector: VGA

The 15-hole D-sub female connector is linked to the VGA monitor by a cable.

7. Serial Port Connectors: COM1, COM2

These two 9–pin D-sub male connectors allow you to connect with your devices that use serial ports, such as a serial mouse or a modem. Usually, it is recommended to connect the serial mouse to COM1 and the fax/modem to COM2.
One more equipped COM2_S onboard is used for internal connection with some riser cards.

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8. PS/2 Mouse and Keyboard Connector: MS, KB

These two 6–pin female connectors are used for your PS/2 keyboard and PS/2 mouse. The PS/2 keyboard connector is for a standard keyboard using a PS/2 plug (mini DIN). This connector will not allow standard AT size (large DIN) keyboard plugs. You may use a DIN to mini DIN adapter on standard AT keyboards. The system will direct IRQ12 to the PS/2 mouse if one is detected. If not detected, expansion cards may be using IRQ12.

9. Printer Connector: LPT

This 25–pin D-sub female connector is attached to your printer. Serial printers must be connected to the serial port.

10. RJ45 Connector: LAN

This connector allows you to connect to the LAN cable for network connections.

11. Universal Serial Bus Connectors: USB

These two connectors are used for linking with USB peripheral devices.

12. Audio Port Connectors: LINE_OUT, LINE_IN, MIC_IN

LINE_OUT can be connected to headphones or preferably powered speakers. LINE_IN allows tape players or other audio sources to be recorded by your computer or played through the LINE_OUT. MIC_IN allows microphones to be connected for inputting voice.

13. Wake-On-Ring Connector: WOR

This 2-pin connector allows the coming ring signal to wake up the system via your modem riser card which is equipped with a connector

for linking with the WOR. Please also refer to the modem card installation guide for related information.

14. Wake-On-LAN Connector: WOL

This 3-pin connector allows the remote LAN server to wake up the system with a LAN card installed. Refer to the LAN card installation guide for details.

15. Infrared Connector: IR (Option)

This connector allows transmission of data to another system which also supports the IR feature.

16. IDE Device Connector: PRIMARY, SECONDARY

This connector, which supports the provided IDE hard disk ribbon cable, is used for your IDE hard disk drive. After connecting the single end to the mainboard, connect the other plug to the other end of your hard disk. Pin 20 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 20 plugged. The ribbon connector on the secondary IDE is usually connected to your CD-ROM drive.

17. Hard Disk Drive Power Connector: HDD_PW

This allows you to connect one end of the hard disk drive power cord to the 4 pin block connector (HDD_PW) on the mainboard and the other end to the rear of the hard disk drive.

18. Front Panel Block Connector: F_PNL

This block connector includes: RESET, POWER LED, IDE LED, LAN LED, and POWER BUTTON connectors.

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