



MITSUBISHI
ELECTRIC

apricot

MS660

Owner's Handbook

Includes a
**QUICK
START
GUIDE**



Designed for



Microsoft®
Windows®95





MITSUBISHI
ELECTRIC



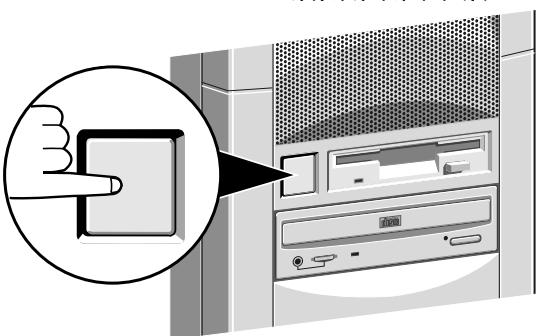
Up and running in a few minutes

1

Power Up

When you have fully connected your system press the **Power button** to turn the computer on.

When the system unit is powered the power indicator on the left of the front panel will light up. If nothing happens, check your connections and supply switch.

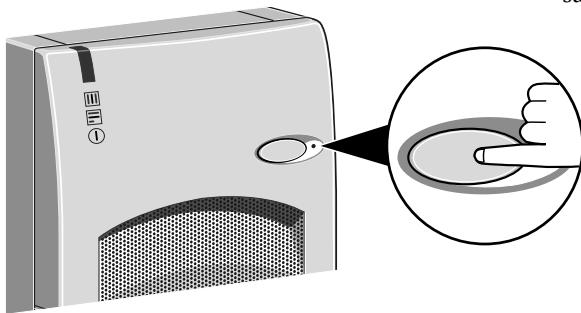


Refer to the “*Troubleshooting*” chapter in the Owner’s Handbook if you encounter any problems.

Remember that the monitor has its own power switch; see the monitor’s *User’s Guide* for details.

The **Standby button** can be used to both place the system into an energy saving mode or restore it to normal operation. Next

to this button is an LED which lights up during either of the Energy Saving modes. Further details are provided on the last page of this guide.



The system will now perform a self-test routine and then display the message, ‘*Starting Windows 95*’. This will take several minutes the first time you switch on, during which time the computer will reboot several times and you will be requested to register your copy of Windows 95.

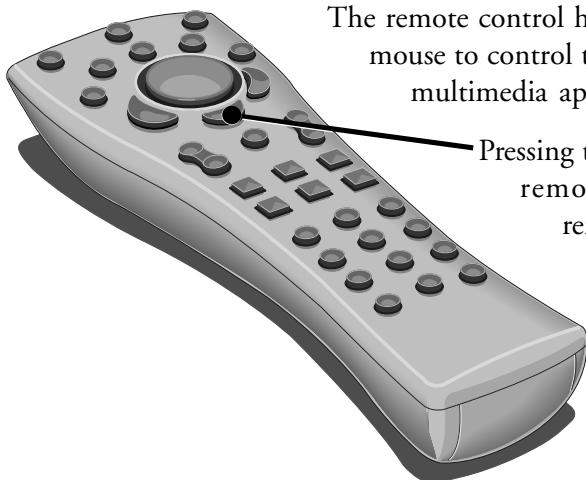
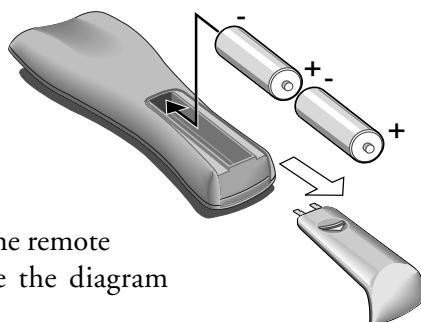
2

The Remote Control

The optional infra-red remote control offers a friendly user-interface to the inexperienced user.

The remote control operates on two AA batteries, which are provided.

You need to insert the batteries into the remote control unit in order to use it. Use the diagram opposite to insert the batteries.

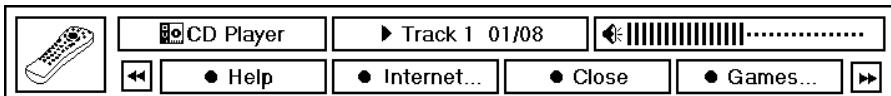


The remote control has an integral two-button mouse to control the major functions of the multimedia applications.

Pressing the MENU button on the remote control displays the remote status window.

The remote status window (shown below) provides you with information on the current status of the remote-controlled program.

For example, here is the remote status window for the CD player:



Pressing the red button while this window is displayed provides access to the remote control's help file. To hide the remote status window, press the MENU button on the remote control again.

STANDBY: puts the PC into, or restores it from energy saving mode. Further details on the energy saving capabilities of your computer are provided on the last page of this section.

If your computer has a TV card fitted, pressing the **TV** button on the remote control for the first time will activate the TV Wizard. This will guide you through tuning into your local transmitter.

MESSAGE: launches the Message Centre application for accessing the various message types. The Message LED on the front panel of the computer will be lit when you have received any new messages.

TTEXT: launches the TV application in full-screen Teletext mode.

START: Displays the main menu to start a program, find a file, or get help.

The coloured buttons can be used:

- In Teletext mode where they are used to drive the Fasttext capabilities of the application.
- To control Apricot Easy Manager applications.
- Outside Apricot Easy Manager, the coloured buttons act as shortcuts for common Windows actions. That is:

OK and **CANCEL** to accept/decline changes.

EXIT to close any application.

TASK changes focus between Windows applications. That is, it has the same functionality as the Windows **ALT-TAB** command, which switches between the windows you have opened.

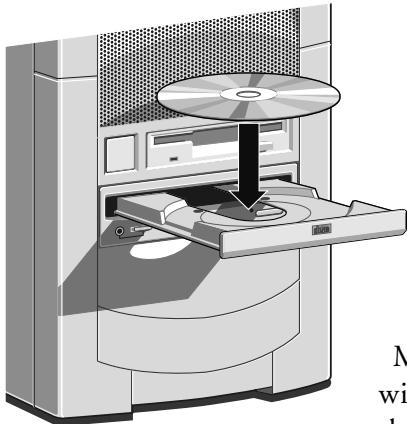


Refer to the on-line tutorial, which can be found in the Apricot Remote Control help file, for further details.



3

Playing Games



To play any of the games provided, you need to insert the appropriate CD into the CD-ROM drive. Press the button on the front of the drive and place the CD label-up on the platter.

Push the button again, or gently push the front of the platter to draw it back into the drive.

Using your remote control, press the MENU button to display the status window. Then, press the corresponding coloured button labelled 'Games' to load the Entertainment Centre screen as shown below:



You can select any of the games by clicking the labelled coloured button with your mouse, or by pressing the appropriate coloured button on the remote control. Some games will require the system to run in DOS-only mode. Where this is the case Windows 95 will shut down and reboot in DOS mode for the duration of the game. Remember to exit the game properly and restore Windows 95 before you switch the system off.

The pictures of the software shown above are for example purposes only, actual software may vary.

4

Please remember...

This computer system is shipped with the latest Energy Star power-saving features already activated, allowing you to be more environmentally friendly in your work. It is intended to help reduce global power consumption, and ultimately waste and pollution. This computer system is designed, when left unattended, to enter a 'Low Power' mode followed by 'Standby' mode shortly afterwards.

LOW POWER MODE

In this state the screen will be blank but your software will still be running, although it will run much slower.

You can **Restore** the system by moving the mouse, pressing any keyboard key, or by pressing the purple STANDBY button on either the front panel, or the remote control. The computer will quickly restore to the state in which you left it. The monitor may take a few seconds to warm up again.

STANDBY MODE

In this state the monitor will be in a controlled 'off' state. The system and software will assume a frozen state. You will **not** lose any unsaved data, unless your mains electricity supply fails. The system fans will slow down or stop altogether.

You can **Restore** the system by pressing the purple STANDBY button on the front panel of the system or the one on the remote control. The computer will quickly restore to the state in which you left it. The monitor may take a few seconds to warm up again.

NOTE

Pressing either of the STANDBY buttons when the system is in normal use will put the system directly **into** standby mode.

You can change any of the above settings. How to access the Apricot power Manager is shown in the chapter 'The multimedia applications'. Refer also to the application's help file.



OWNER'S HANDBOOK

APRICOT MS660



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Published by:
Apricot Computers Limited
3500 Parkside
Birmingham Business Park
Birmingham, England
B37 7YS

<http://www.apricot.co.uk>



Printed in the United Kingdom

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**read the instructions first ! See chapter 3*

SAFETY AND REGULATORY NOTICES

Electrical

The computer uses a safety ground and must be earthed.

The system unit AC power cord is its 'disconnect device'. Ensure that the system unit is positioned close to the AC power outlet and that the plug is easily accessible. The power cord packed with the computer complies with the safety standards applicable in the country in which it is first sold. Use only this power cord. Do not substitute a power cord from any other equipment.

To prevent fire and electric shock, do not expose any part of the computer to rain or moisture and turn off the computer and unplug all power cords before moving or cleaning the system unit, or removing any system cover.

Battery

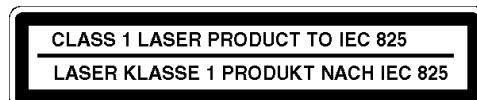
This product contains a lithium battery:

Do not use a metal or other conductive implement to remove the battery. If a short-circuit is made between its positive and negative terminals the battery may explode.

Replace a discharged configuration (CMOS) battery with one of the same type. Dispose of the battery in accordance with the manufacturer's recommended instructions and **Do not** attempt to recharge, disassemble or incinerate the discharged battery. Keep away from children.

Laser products

Any CD-ROM drive fitted in this system is classified as a CLASS 1 LASER PRODUCT according to IEC825 *Radiation Safety of Laser Products (Equipment Classification: Requirements and User's Guide)*. The CLASS 1 LASER PRODUCT label is located on the underside of the system unit.



It will be in high visibility colours and bear the details shown above.

Use the CD-ROM drive only as described in this manual. Failure to do so may result in exposure to hazardous radiation.

Ergonomic

When positioning the system unit, monitor and keyboard, take into account any local or national regulations relating to ergonomic requirements.

External Speakers (where supplied)

Always switch off or disconnect the AC supply before disconnecting any of the speaker leads, whether audio or power. Disconnect the AC supply when equipment is not used for a period of time.

To prevent the risk of electric shock, do not remove speaker covers.

Connecting the speaker power cord to any other cords or joining cords together can cause fire and risk of electric shock.

Standards

Safety

This product complies with the European safety standard EN60950 plus amendments 1, 2, 3 and all European country deviations.

Electro-magnetic Compatibility (EMC)

This product complies with the following European EMC standards:

Emissions	EN55022	Class B
Immunity	EN50082	Level 2

This product also complies with the following International EMC standards:

VCCI level 2 (Japan)

German Acoustic Noise Regulation

Sound power level is less than 70 dB(A) according to DIN 45635 Part 19 (ISO 7779).

Notes

All interconnecting cables (e.g. Microphone, headphone and speaker) and communication cables should be less than 2 metres in length. If cable extensions are used, ensure adequate earth connections are provided and screened cables are used.

Legalities

This equipment complies with the following European Directives:

Low Voltage Directive	73/23/EEC
EMC Directive	89/336/EEC
CE Marking Directive	93/68/EEC
and where applicable:	
Telecommunications Directive	91/263/EEC

Caution

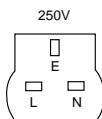
This system complies with the CE marking directive and its strict legal requirements. Use only Apricot tested and approved parts. Failure to do so may result in invalidating both the compliance and your warranty. All expansion cards or upgrade components must carry CE marking.

Thermalcote bonding compound

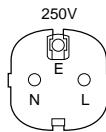
The thermal bonding compound used between the system processor and its heatsink can cause skin irritation and stain clothing. Avoid prolonged or repeated contact with skin. Wash thoroughly with soap and water after handling. Avoid contact with eyes and inhalation of fumes. Do not ingest.

Power connection information

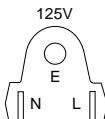
Typical AC plugs



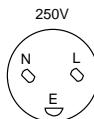
BS1363A



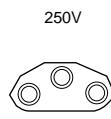
SHUCO



NEMA 5-15P



SRAF 1962/DB16/87



ASE 1011

U. K.

Austria Belgium

Taiwan

Denmark

Switzerland

Finland France

Thailand

Italy Germany

Japan

Sweden Norway

USA

Holland

Canada

Procedure

Note

Any ancillary equipment using an AC power supply cable should be earthed.

The power supplies in the computer and the monitor are correct for the country in which the system is first sold. Do not alter any switch settings on the rear of the system. If you wish to use the computer in another country it may not be suitable, contact your supplier or an authorised Apricot dealer.

- ◆ Before connecting up any parts of the system, ensure that the AC supply is switched off or disconnected.
- ◆ First connect up the keyboard, mouse, monitor signal cable, and audio cables as appropriate.
- ◆ Connect up all AC cables. (System to supply, system to monitor, all related peripherals.) Then switch on or connect the AC supply.
- ◆ Switch on the monitor first, then the computer followed by the peripherals, such as printer or speakers.

Power Cable Connections - UK ONLY

This equipment is supplied with an AC power lead that has a moulded, non-removable, 3-pin AC plug.

Always replace the fuse with one of the same type and rating which is BSI or ASTA approved to BS1362.

Always refit the fuse cover, never use the plug with the fuse cover omitted.

Never substitute a power cord from any other appliance. If you suspect a fault with the AC power lead, obtain a replacement from your supplier or authorised maintainer.

INTRODUCING YOUR COMPUTER

This chapter gives you a quick tour of your Apricot multimedia computer. It details the various features of the computer and contains pictorial guides to help you become familiar the various parts of the machine.

If you have yet to get your computer up and running for the first time, please refer to the 'Quick Start Guide'.

Warning

Read the power guidelines which can be found in the 'Safety and Regulatory Notices' section of this manual before using the computer for the first time.

Your Multimedia Computer

Your MS660 multimedia computer comes with a host of standard features (listed below), as well as providing the opportunity of expanding the system to suit your personal requirements.

Don't worry if you are unfamiliar with some of the computer terminology used here. It's provided as a useful 'shorthand' for more experienced readers. Be assured, you don't need to understand any jargon to use the computer safely and efficiently. On the other hand, if you wish to learn more, introductory books about computers can be found in your local bookshop or library.

Standard Features:

- ◆ Intel Pentium processor processor with upgrade capability.
- ◆ 8 Mbytes of random access memory (RAM), which is **upgradeable** to 128 Mbytes.
- ◆ BIOS Setup configuration utility in read-only memory (ROM).
- ◆ Apricot's Electronic Fingerprinting security application.
- ◆ Full **power management**.

Introducing your computer

- ◆ On-board high performance PCI bus video based on an ATI 264GT controller, for enhanced 3-D graphics capabilities, equipped with 2 Mbytes of video memory.
- ◆ Primary and secondary local bus Integrated Drive Electronics AT-Attachment (IDE/ATA) interfaces for IDE hard disk drives and ATA-PI (ATA Packet Interface) CD-ROM drives respectively.
- ◆ On-board Creative Labs **Soundblaster 16** audio which has Plug and Play functionality.
- ◆ Six expansion card slots.
- ◆ 1.44 Mbytes floppy diskette drive and fast hard disk drive.
- ◆ Powerful speakers.
- ◆ Dual stacked Universal Serial Bus (USB) high-speed ‘serial’ link connectors to USB compatible interfaces, for future expansion.

Optional features:

- ◆ Apricot Sensonic anti-theft alarm system.
- ◆ Infra-red remote control, fully integrated two button mouse.
- ◆ TV with Teletext support and operation.
- ◆ 16 Mbytes of memory.
- ◆ Wavetable card to bring realism to your digital sound system.
- ◆ Deep Sound subwoofer.

Energy-efficient features

All models in the range comply with the requirements of the US Environmental Protection Agency's 'Energy Star' programme for energy-efficient computers. These models support:

- ◆ System Management Mode (SMM) of processors.
- ◆ Operating systems and applications that use the Intel/Microsoft Advanced Power Management (APM) interface standard.

- ◆ VESA BIOS Extensions for Power Management (VBE/PM), for use with energy-efficient monitors that support Display Power Management Signalling (DPMS).

Caution

Do not attempt to use the computer's energy-saving features with a monitor that does not support DPMS; the monitor may be permanently damaged. If in doubt consult your supplier.

If the computer is left unattended for a certain amount of time (defined in the Apricot Power Manager application) the computer will enter a Low Power mode. The screen will blank, and some of the computer's components will slow down. **Do not worry!** This is meant to happen.

Pressing any of the keys on the keyboard or moving the mouse will restart the computer in full power mode. There is also a further mode of Standby, for which the purple button is used to restore the system. (See the following pictorial guides to locate this button). In this mode, everything stops, but the system will respond to incoming messages and scheduled events. All the settings can be adjusted or disabled if required.

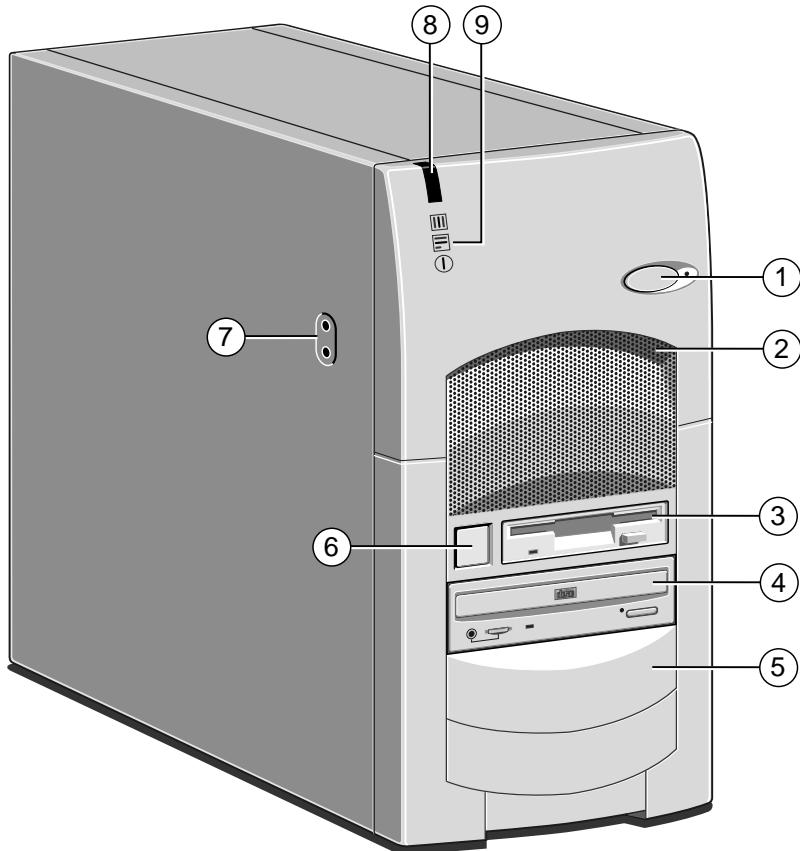
Further detailed information, on all of this, can be found in the help file provided with the Apricot Power Manager application. How to find the application is shown in the chapter 'The Multimedia applications'.

Pictorial guides

The following pages show details of the front, back and inside of the system, along with instructions on how to remove the panels to gain access to the inside components.

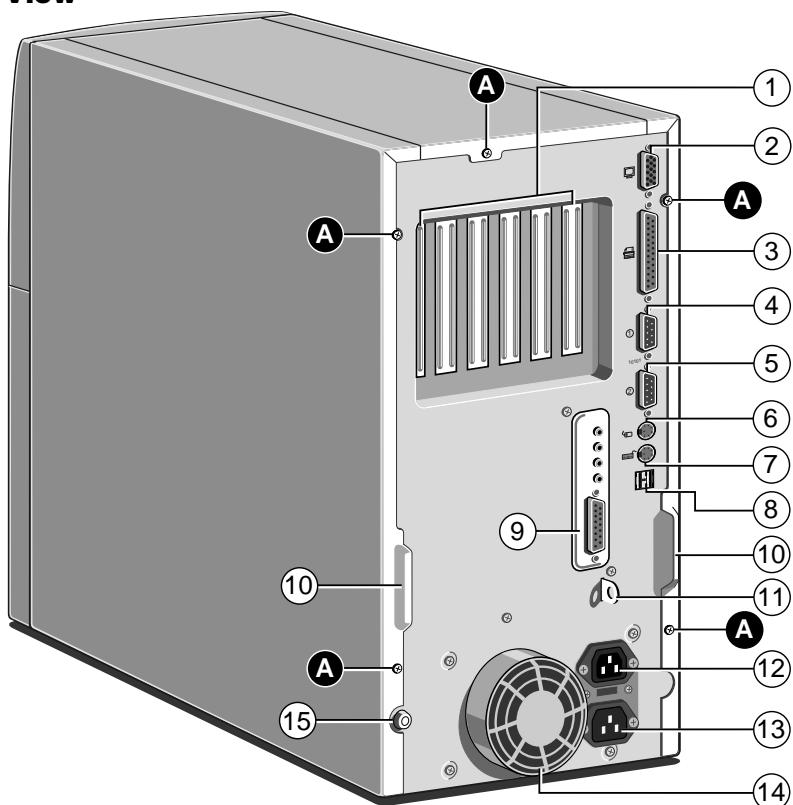
You should study them carefully and familiarise yourself with all the connections and controls before reading some of the following chapters as it will make them easier to understand.

Front View



- | | |
|--|--|
| 1 Energy saving button and LED | 6 Power button |
| 2 Internal speaker grill
(This speaker cuts off when external speakers connected) | 7 Front audio connections:
Upper - Speakers
Lower - Microphone |
| 3 Floppy diskette drive | 8 Receiver for optional remote control |
| 4 CD-ROM drive
-or optional PD drive | 9 System LEDs:
Upper - Message received
Middle - Hard disk active
Lower - AC power on |
| 5 Available drive bays | |

Rear View



1	Rear of expansion bay	9	Audio (see chapter 2 for details)
2	VGA port for monitor signal cable	10	Handles to assist during side panel removal
3	Parallel or printer port	11	Security loop for cable or padlock
4	Serial port 2 (not useable if remote control supplied)	12	AC power output for monitor
5	Serial port 1	13	AC power input from supply
6	Port for PS/2 mouse	14	Protection cover for PSU fan DO NOT use to lift system
7	Port for PS/2 keyboard	15	Main side panel lock
8	Dual stacked USB port	A	Panel fixing screws

Removing panels

For complete access to the motherboard and for fitting expansion boards the main side panel and the top panel both have to be removed. Both side panels will require removal if any drives are to be fitted into the remaining drive bays.

Warning

Turn off the computer, along with all peripherals, and unplug all power cords before removing any panels. Take suitable antistatic precautions while any of the system panels have been removed.

Main panel

1. Unlock the cover with the special key provided. The lock is shown on the drawing opposite.
2. Release the appropriate panel screws.
3. Slide the panel carefully towards the rear of the system using the handle provided.
4. After about 2 to 3 cm movement it is possible to lift the panel vertically clear of the system.

The lower half of the motherboard and all of its components are now accessible. For complete access carry on and remove the top panel.

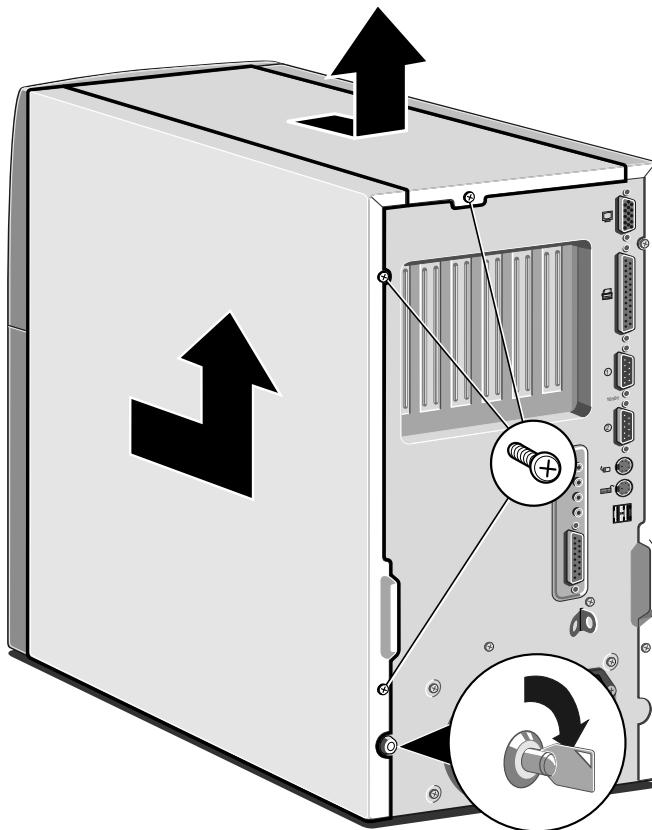
Caution

Exercise care with the removed panels as there are metal fixings and hooks on the inside. These may scratch delicate surfaces.

Top panel

1. First remove the main side panel as detailed above.
2. Remove the top panel retaining screw.
3. Again slide the panel towards the rear of the system.
4. After 2 to 3 cm the panel should be free to lift off.

You can now safely access or fit expansion cards.



Other side panel

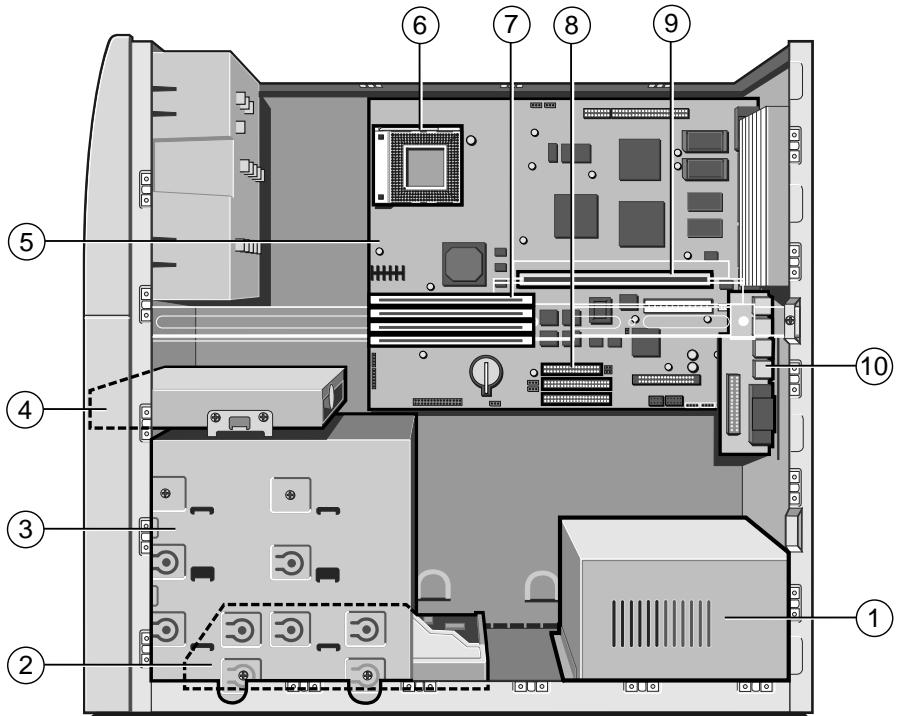
This panel only needs to be removed for access to the drive bay fixing screws. No other components can be reached from this side.

1. Remove the two panel securing screws.
2. Slide the panel carefully towards the rear of the system using the handle provided.
3. After about 2 to 3 cm movement it is possible to lift the panel vertically clear of the system.

The access window to the drive mounting screws is now clearly visible. For instructions on fitting drives see the chapter on upgrading your system.

The internal layout

Please note that for clarity, all the internal ribbon and power connections are not shown.



1 Power supply	6 Processor socket
2 First hard disk	7 Memory, banks 1 and 2
3 Main drive housing -CD-ROM at top	8 Connections for drive ribbon cables
4 Floppy diskette drive	9 Expansion riser
5 Motherboard: (see Motherboard chapter for details)	10 Audio board: (see chapter 2 for connection details)

USING YOUR COMPUTER

You should read this chapter even if you do not read any other. It provides useful information on the correct operation of the drives fitted to your computer and explains the multimedia features.

This guide assumes that your computer is up and running. If you have yet to get the computer up and running please refer to the 'Quick Start Guide' *before* you read any further.

Using the floppy diskette drive

The floppy disk drive is usually configured in the system BIOS as drive A:, with a capacity of 1.44 Mbytes.

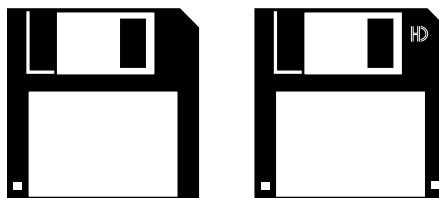
The floppy diskette drive can read and write to both 720 Kbytes disks (if marked 'DD' or 'double density') and 1.44 Mbytes disks (if marked 'HD' or 'high density'). The HD disks have twice the capacity of DD disks, it is therefore more economical to purchase them.

Each diskette has a rigid plastic cover with a metal shutter that guards the disk surface. The drive automatically moves the shutter aside to read the diskette.

Caution

Never touch the exposed surface under the shutter; you could deform the disk or leave a fingerprint that might make it difficult to read.

The immediate physical differences between the HD and DD floppy disks are shown in the diagram below:



The HD disks have the 'HD' logo near the shutter and an extra hole beside the label. This enables the drive to distinguish between

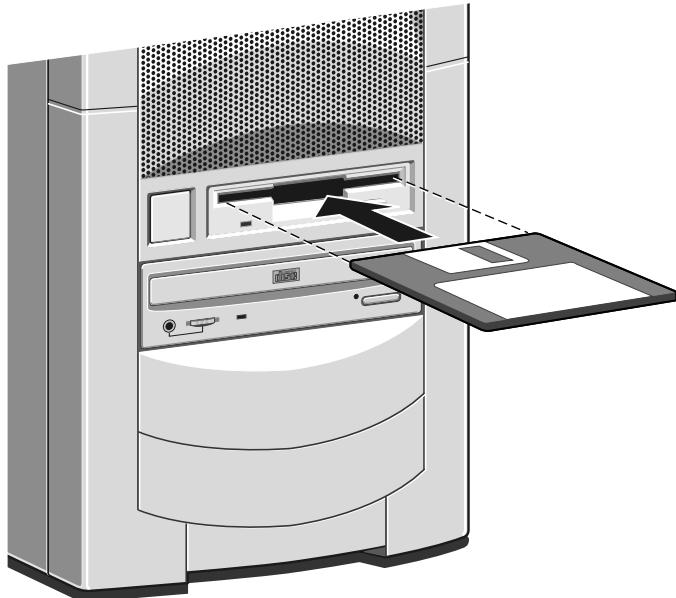
Using your computer

the two. The other hole which exists on both disks is the write protect tab (on the underside).

Keep diskettes well away from dust, moisture, magnetic objects, and equipment that generates magnetic fields. Also, avoid extremes of temperature and exposure to direct sunlight. Otherwise, data recorded on the diskette may become corrupted.

Inserting a diskette

A diskette is inserted into the diskette drive slot shutter-foremost, and with its label side facing up. Some diskettes have a small arrow on the face of the diskette; this must point towards the drive when you insert the diskette:



Push the diskette all the way in until it engages with the drive mechanism. When the drive's eject button pops out, the diskette is fully engaged.

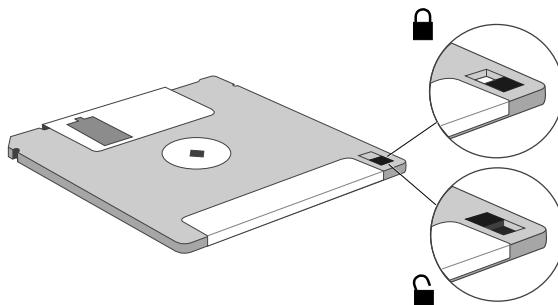
Removing a diskette

Before attempting to remove a diskette, make sure that the drive is not currently in use (the diskette activity indicator, opposite the drive's eject button must be unlit). Press the eject button on the drive. The drive mechanism disengages and the diskette is ejected half-way out of the drive.

If a diskette becomes stuck in the drive, perhaps because its label has peeled back, do *not* attempt to remove it with tweezers or any similar implement; you risk damaging the drive. Call an authorised maintainer.

Write-protecting a diskette

A diskette can be write-protected by sliding a small tab towards the edge of the diskette to expose the little hole beneath it (see diagram). With the tab in this position, you can read, copy or print files from the diskette, but you cannot create, rename or delete any files.



The BIOS Setup utility can be used to bar access to the diskette drive. See '*System BIOS and Setup*' for further details.

Using the CD-ROM drive

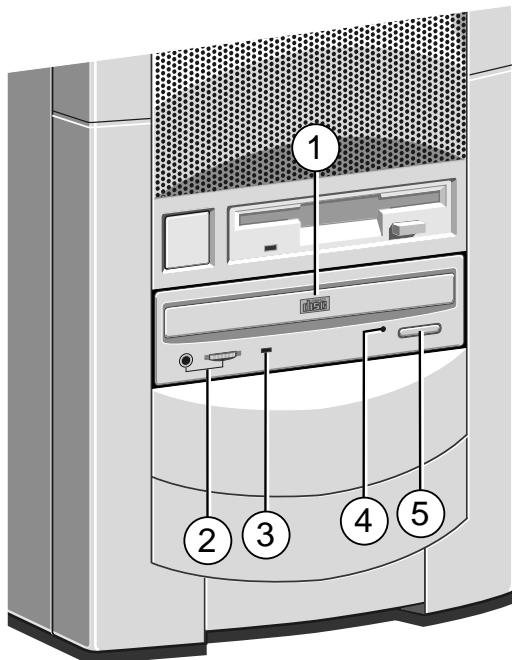
The CD-ROM drive can retrieve multimedia data from CD-ROM discs and multi-session Photo-CD discs. It can also play commercial audio CDs.

It is important that the computer is not moved while a CD is in the drive, especially if the CD is being played at the time.

Using your computer

The CD-ROM LED flashes when the CD-ROM tray is opened, and when it is active (i.e. busy reading information).

The CD-ROM drive has the following features:



-
- | | |
|---|---|
| 1 | Disc drawer |
| 2 | Headphone jack and headphone volume level |
| 3 | Busy indicator |
| 4 | Emergency eject hole |
| 5 | Eject button |
-

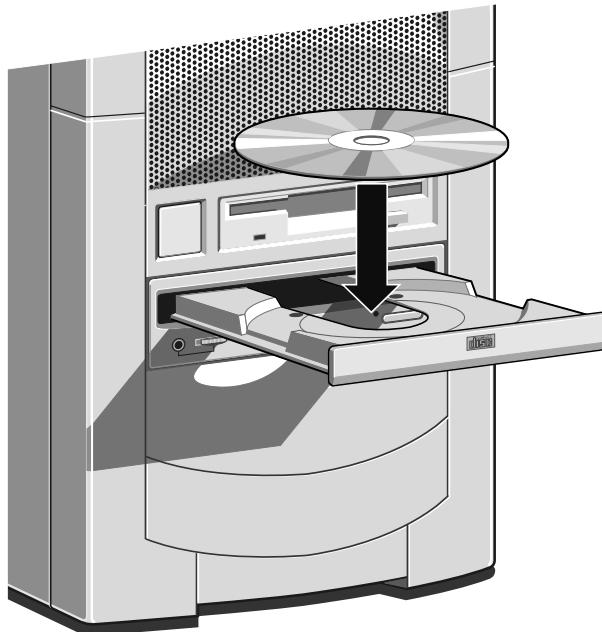
Warning

The laser beam inside the CD-ROM drive is harmful to the eyes. Do not attempt to disassemble the CD-ROM drive. If a fault should occur it is advisable to contact an authorised maintainer.

The headphone socket and volume control can be used whilst listening to commercial audio or music CDs (providing you are not using external speakers, or feeding the output to your hi-fi). You can still use all the other various features of your computer whilst you are playing an audio CD.

Inserting a compact disc

Press the button on the front of the drive and place the CD label up on the platter:



Push the button again, or gently push the front of the platter to draw it back into the drive.

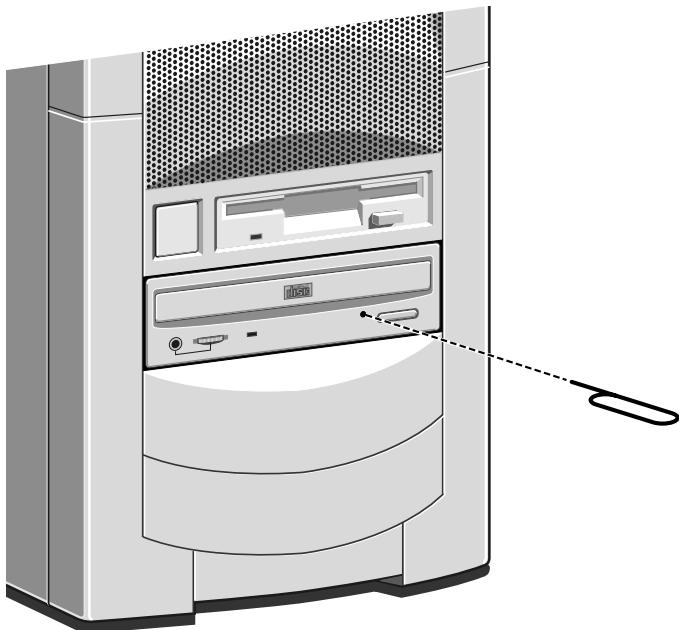
Removing a compact disc

Before attempting to remove a CD, ensure that the drive is not currently active.

Press the Eject button. The drive mechanism disengages and the platter is ejected.

Using your computer

To eject the drawer manually (for example, during a power failure) you must ensure that the computer is turned off. Then insert a thin metal rod (such as an unwound paper clip) into the emergency eject hole and push, see below:



Care of CDs

Keep CDs well away from dust and moisture, and avoid touching the surface of the CD. Avoid extremes of temperature and exposure to direct sunlight as these may cause the disk to warp.

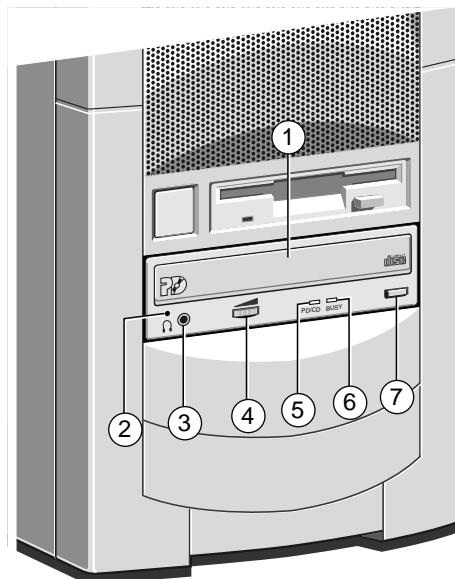
Always store CDs in their original cases wherever possible. Replacement cases are readily available in the larger record stores. CD storage racks are useful as you will find the majority of new software is now supplied in CD format.

Using the (optional) PD/CD-ROM drive

The dual purpose PD/CD drive can read CD-ROM, Photo CD and play audio CDs as well as providing re-writable optical cartridge backup. It can be fitted as an option into any system where both a CD-ROM drive and an efficient re-writable backup device is needed.

The Phase-change drive will occupy the same space as the conventional CD-ROM drive, with the minor differences in controls as shown in the illustration.

The drive control software provides two icons in both the drives control panel and the Windows 95 explorer. Each has its own drive letter representing either the PD data cartridge, or the CD-ROM. If you click on the wrong one, (and try to access the wrong media) the software will give you a simple error message.



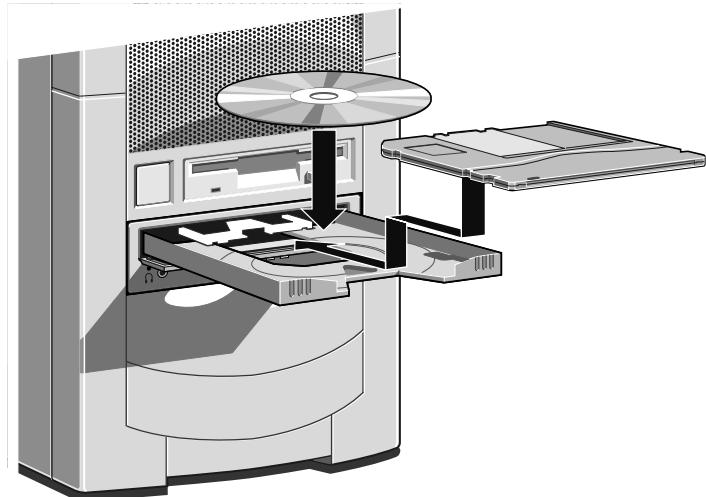
1	Disk/cartridge drawer	5	Media Indicator LED
2	Emergency eject hole	6	Drive busy indicator LED
3	Stereo headphone socket	7	Eject button
4	Volume control for headphone		

Inserting a PD cartridge/ compact disc

Warning

The PD/CD drive can only accept one type of disk at any one time. Do not try to attempt to load both a CD and PD cartridge at the same time as this will severely damage the drive.

Press the Eject button on the front of the drive and place the CD or PD cartridge face up on the platter:



Push the button again, or gently push the front of the platter to draw it back into the drive.

The indicator LED will then light up to indicate the type of disk which has been inserted. The indicator shows green when the drive detects a CD-ROM but changes to amber when a PD cartridge is inserted.

The drive busy indicator will flash for a short while as the drive spins up to speed. Wait until it stops flashing before attempting to read or write information from it.

The drive can use any PD cartridges bearing the  logo. If the cartridge is not formatted you will be prompted to format it. All the standard types of CD can be used in this drive, data, music etc., including the mini-CD.

Removing a PD cartridge/compact disc

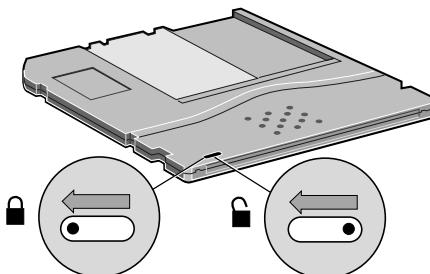
Before attempting to remove a CD or PD cartridge from the drive, ensure that the drive is not currently active (wait for the drive's busy activity indicator to stop flashing).

Press the Eject button. The drive mechanism disengages and the platter is ejected.

To eject the drawer manually (for example, during a power failure) you must ensure that the computer is turned off. Then insert a thin metal rod (such as a unwound paper clip) into the emergency eject hole and push (as shown for emergency eject of the CD-ROM drive).

Write-protecting a PD cartridge

A PD cartridge can be write-protected by sliding the red switch (you will need to use a pen or pencil tip) on the cartridge to the locked position (marked with a closed padlock symbol) as shown below:



Cleaning your drives

Cleaning a floppy drive

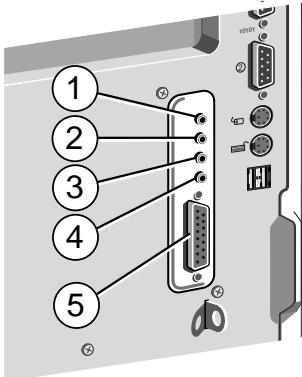
Do not insert cotton buds or other implements into the drive door. If you think the drive needs cleaning, obtain a specialist cleaning kit from a reputable supplier. It looks like a floppy disk, but has a special head cleaning surface inside which removes dust and fluff from the reading heads and the mechanism. They should be used only once and then discarded.

Cleaning the CD-ROM or PD drive

It is recommended that you occasionally use a specialist CD cleaning disk to clean the lens in the drive as it may become dusty and fail to operate. Similar rules apply as for the floppy drive.

The sound connections

There is an audio interface board mounted at the rear of the system providing a range of connections and interfaces to other equipment.



1	Speaker connection	4	Microphone input
2	Line out (to Hi-Fi)	5	MIDI or joystick port
3	Line in (from Hi-Fi etc.)		

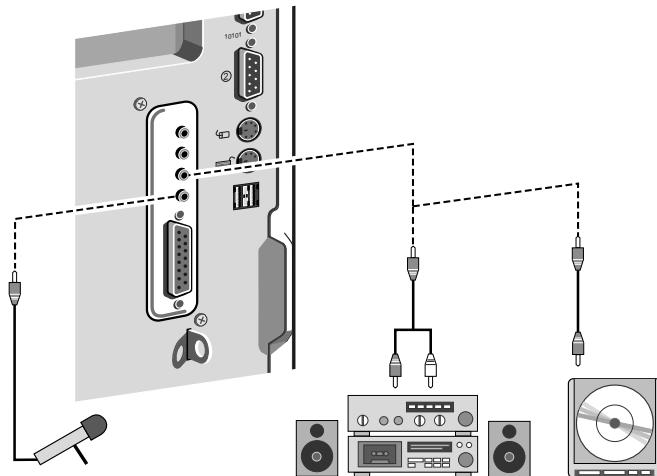
The Joystick/MIDI port can be used to connect any analogue joystick with a 15-pin D-sub connector, or Musical Interface Digital Interface (MIDI) compatible device such as a music keyboard.

The mono microphone input is provided with phantom power for electret condenser microphones. The minimum impedance of any microphone used must be 8 Ohms.

Note

Using either the microphone socket provided at the front of the machine or the one provided with the rear audio board, disables the use of the other, that is, only one microphone socket can be used at any one time.

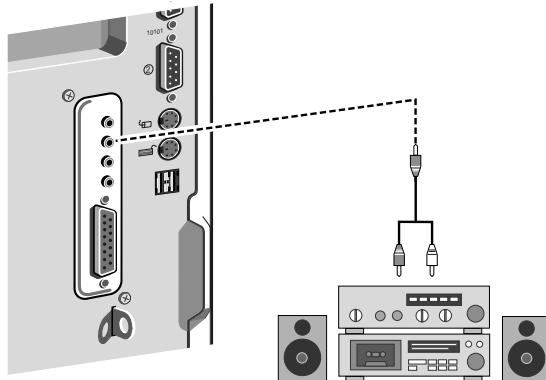
Audio inputs



The line-in socket allows the connection of audio sources to be used when monitoring or recording sound. You can connect a personal stereo (tape or CD), or a line-out signal from a high-fidelity tape deck or CD player.

Audio outputs

The line-out socket allows you to connect the audio output to the line-in connections of a high-fidelity amplifier or tape deck.



The speaker sound system

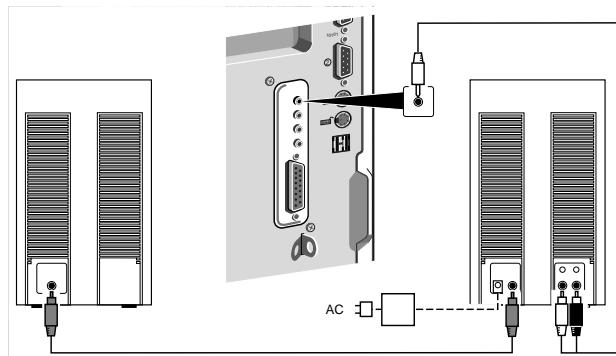
Your system comes with either separately powered speakers, or standard speakers plus a Deep Sound subwoofer unit as an optional extra.

It is important that the power cord is connected last. Make sure the AC power is off when connecting either power or audio leads.

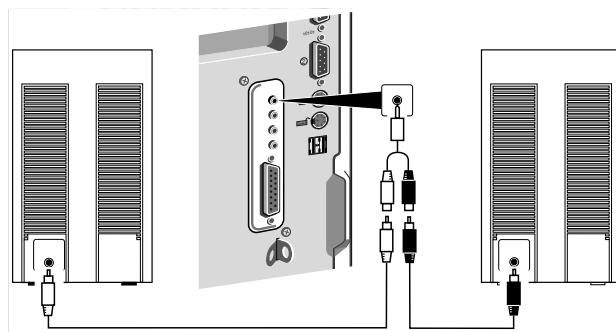
The speaker cable which fits into the rear of the computer, plugs directly into the speaker socket of the rear audio board and in doing so, disconnects the internal speaker.

If you intend to use another speaker system, ensure that the speaker impedance is 8 Ohm minimum.

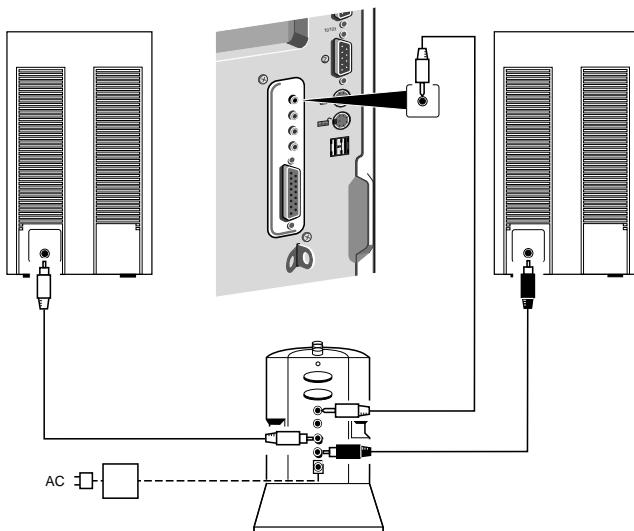
Separately powered speakers only



Standard speakers only



Standard speakers and Deep Sound subwoofer unit



Customising your display settings

Your copy of Windows 95 is initially supplied set up for a standard VGA monitor, so that Windows 95 is sure to display correctly whichever monitor you connect. However, all Apricot monitors can display in higher resolutions than standard VGA.

When you have finished installing Windows 95, you can change the setting to one that matches more closely to your own monitor, so as to get the best performance from it.

Changing the monitor setting is done via the ‘Start’, ‘Settings’, ‘Control panel’ menu route, then choosing the ‘display’ icon. It contains a list of major monitor manufacturers and models, including all current Apricot monitors. You can also access this setup by right clicking the mouse on the background of the windows95 desktop and selecting ‘Properties’. See Windows 95 Help for more details on changing hardware settings.

The hard disk drive

Apricot computers are supplied with one internal hard disk drive which is divided into two partitions. They are designated as drives C: and D: in the Windows 95 Explorer software.

The Windows 95 programs and utilities can be found in the C:\WINDOWS folder. More details can be found in the Windows 95 User's Guide and Help. Information on software tools, such as one to compress the software into a smaller space or one to defragment your files and make them faster to access can also be found there.

DriveSpace

It is possible, as an alternative to the expense of fitting an additional hard drive, to use the disk utility software such as DriveSpace within Windows 95, which appears to increase and often more than double the size of the hard disk drive using software compression technology. It is advisable to backup your data before you do so. Refer to the Windows 95 Help files for further details on this utility.

Software Backup

Apricot computers normally arrive with the operating system pre-installed on the hard disk. The hard disk also contains a complete set of ATI video display drivers. Additional software may be pre-installed by your supplier.

Apricot recommends that you copy or **back up** any pre-installed software soon after setting up the system. This is particularly important for systems which are supplied without installation diskettes for the software on the hard disk. A back up copy will safeguard the pre-installed software against loss if the hard disk fails, or if you accidentally overwrite, or delete the files.

- ◆ The Recovery CD (UK only) with your system contains all software including the operating system which was pre-installed at the factory. This CD can therefore return the hard disk back to the way it was when it left the factory. Please refer to the Recovery CD Instruction Card *before using the CD*.

Warning

The Recovery CD will return your hard disk back to way it was when it left the factory. Please ensure whenever possible that you have separately backed up data files as any software installed since your first power on, or data created since then will be lost during the recovery procedure.

- ◆ Microsoft's Create System Disks utility provided within Windows 95, in the System Tools folder can be used to make master floppy disks of any other pre-installed software provided with your system.
-

Note

*Any copy you make of pre-installed software must be used **only** as a back up copy, in case the pre-installed software is lost. You are not allowed to use installation diskettes created from disk images to install the software onto another computer.*

Using Help

Along with the software pre-installed on your computer's hard disk, you will often find one or more Apricot Help files. These will explain any special features of the system, and will tell you how to install the software needed to exploit those features.

Apricot Help may be supplied as Windows Help files or README text files. The Help Files will be found in the Apricot Folder. The README.1ST files or other ASCII text files (identified by their .TXT extensions) can be opened by most text editors and word-processing packages. Alternatively they can be displayed, one screenful at a time, in a DOS window, using the command **More**. For example:

more readme.1st

3

FIRST USE OF INTERNET AND 'BRANDING'

Setting up your free Internet/Fax

To set up your free Internet and Fax (available in the UK only, please check with the 'Free Internet' card) you need to complete the following steps:

Double-click on the following icon on your desktop:



The following setup screen will appear:



1. Your name should appear (you entered it to register for Windows 95). If it does not, please type in your name.
2. Type in your Infotrade Account Number. This can be found on the Free Access leaflet provided with your system.
3. Type in the telephone number your PC is connected to.
4. Press the **Setup Now** button to continue and the information you have entered will appear on the following screen:

Internet and security



5. Check that the information is correct. If it is not, press the **Re-enter Information** button to correct the details. If the information is correct press the **Information is correct** button to continue.
6. The following screen appears when you press the **Information is correct** button:

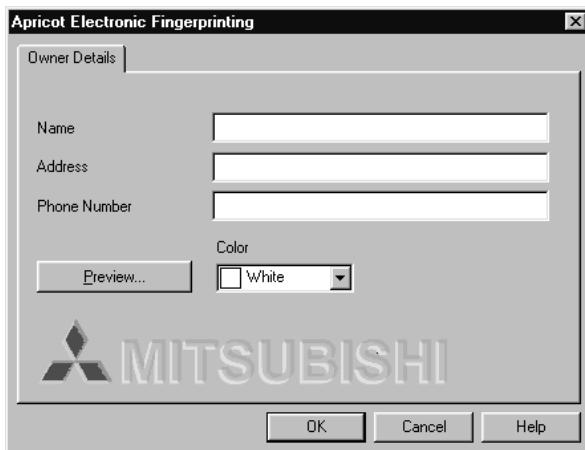


7. Press the **Finish Setup** button. You have successfully completed setup.

For normal use of the Internet and connecting to it, you should now turn to chapter 4 for further information.

'Branding' your computer

'Branding' or **fingerprinting** allows personalised information to be stored in part of the computer's permanent memory. It is easily done using the Apricot Electronic Fingerprinting application, which will start up when the computer has finished setting up Windows 95. The application will open every time you switch on, until you enter your personal details. These details will be displayed every time the computer is switched on. It is intended that this information includes your name, address and phone number so that should your computer be stolen, it can be traced back to you.



Extremely important

1. *The first time you use the Electronic Fingerprinting application a unique 'fall-back' password will be displayed. This is a 12-digit number and can be used, in an emergency, if you should forget your password. You must therefore make a note of this number, this is the only time you will ever see it. A page at the back of the manual is provided for you to note it down. Cut it out and keep it in a safe place.*
2. *If you have not yet 'branded' your computer it is advisable that you do so before somebody else gains access to your computer and sets a branding message and password which could then prevent you having access to your own computer.*

Note

You will be able to change any of the items in your branding details by running the Apricot Electronic Fingerprinting application later and entering the correct password. This would be necessary, for example, if you moved house.

After you have entered your details you will be prompted to set a password. This prevents anybody else from gaining access to your personal details or changing them. Optionally, for extra security Electronic Fingerprinting can be set such that this same password is requested every time the computer is switched on.

When you have entered all the details and any chosen passwords, the final step is to select 'OK'. The information now has to be written to the read only memory built onto the motherboard. This will take a few moments and a message saying this will appear. Do not switch off while this is going on.

Until you have entered your branding details, the Apricot Electronic Fingerprinting application will automatically run each time Window 95 starts. Thereafter, the program can be run by selecting its icon which is displayed at the top of the Start bar menu. You will be asked to enter your password.

Please refer to the on-line help file for detailed information.

Caution

If you set a Power On Password in the system BIOS, this will still be effective and must be entered. It will be requested immediately AFTER the fingerprint password has been verified.

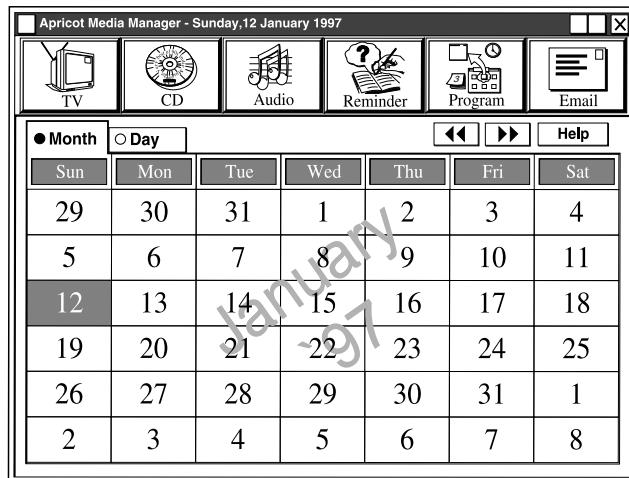
THE MULTIMEDIA APPLICATIONS

This chapter details instructions on how to access the software which comes with your computer. The Apricot group of multimedia software applications are collectively referred to as the Easy Manager Software.

The Apricot Media Manager application

The Apricot Media Manager application provides an easy way to schedule the automatic launch of other software such as the TV, CD applications. In addition the Media Manager allows you to create automatic pop-up reminders and launch third-party applications.

Scheduling an event is easy with the user-friendly interface:

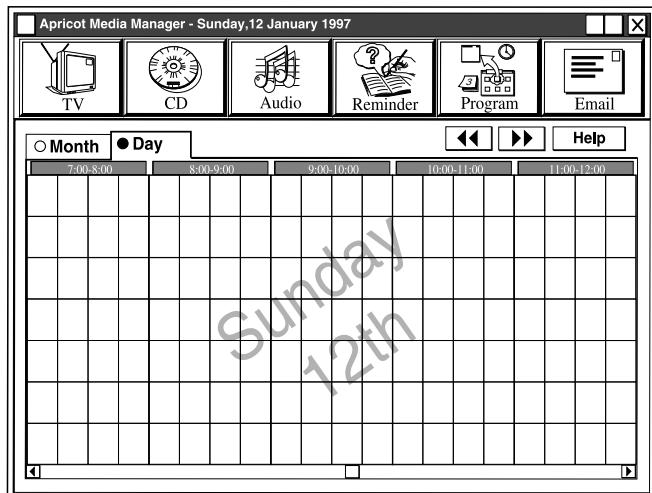


The current day is highlighted by default with the number shown in red.

Any other day is easily selected by clicking on the day with your mouse, which subsequently becomes highlighted (as 12th January, shown above). You can press the day tab button on the monthly view, double-click the selected day, or press the corresponding

The multimedia applications

coloured button on the remote control to take you into the daily view display:



To schedule an event for any time of the day select the icon corresponding to the event you wish to schedule.

For example, to schedule the launch of the TV application to coincide with the beginning of the Nine O'clock News you would:

1. Select the TV icon from the top of the Daily View. This will then display the TV dialog.
2. You will be prompted to enter the start and end times for the event, this being 21:00 and 21:30 respectively.
3. The default display mode is set to full screen. If you wish to alter the display mode then select the 'Display' tab to select your display mode preference.
4. Select 'BBC 1' in the 'Channels' tab.
5. Select the 'Repeat' tab to schedule the event for the week.
6. Finally, assign a title such as, 'The Nine O'clock News' to the event. This helps you identify the event before it is about to be launched as the title will appear in the taskbar countdown.

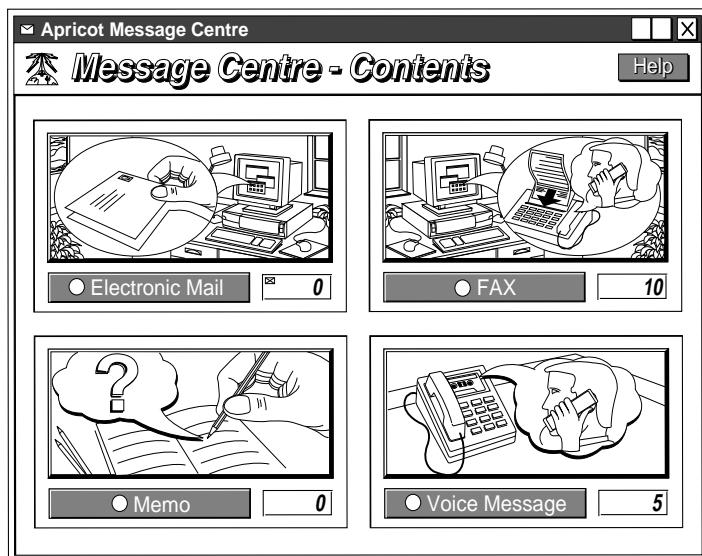
Further detailed information can be found in the on-line help file.

The Apricot Message Centre application

The Apricot Message Centre application monitors your incoming messages from the e-mail, fax or telephone systems.

The Message Centre LED on the front panel of the machine will flash indicating that you have received a message in the Message Centre. To find out what message has been sent, press the MESSAGES button on the remote control. This will open a single window with artistic views of the four message types that can be accessed via the Message Centre (shown below).

A specific message type can then be selected by either pressing one of the coloured buttons on the remote control corresponding to the message types, or by pressing the message type button. This will then open the specific message type window enabling you to access the messages.

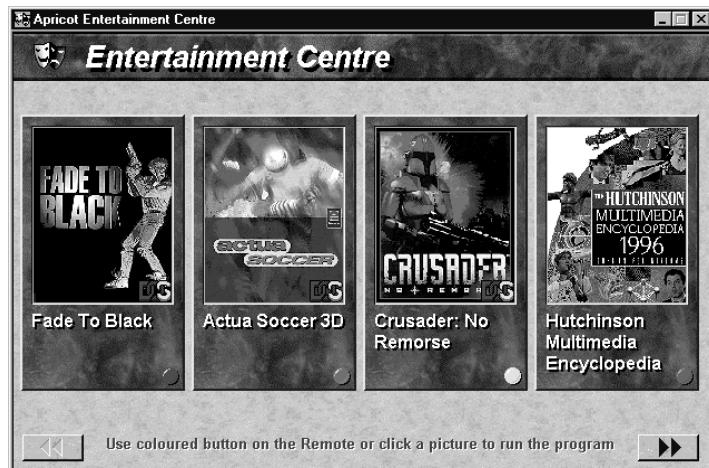


The Apricot Entertainment Centre application

The Apricot Entertainment Centre provides you with an interface to the games and multimedia programs which came with your system.

To access the Entertainment Centre press the HELP button on the remote control, and then press the coloured button labelled 'Games'. Providing the games CD has been inserted into the CD-ROM drive, pressing any one of the coloured buttons on the remote control will load that particular game.

Some games will require the system to run in DOS-only mode. Where this is the case Windows 95 will shut down and switch to DOS mode while you are running the game. There is no need to be concerned, as this is meant to happen. When you exit the game, Windows 95 will be restored.



The pictures of the software shown in the above example may vary with the software you actually receive.

The Apricot Power Manager application

Intelligent power management features come as standard with your system. These features allow you to leave your system powered 24 hours a day much like your video recorder.

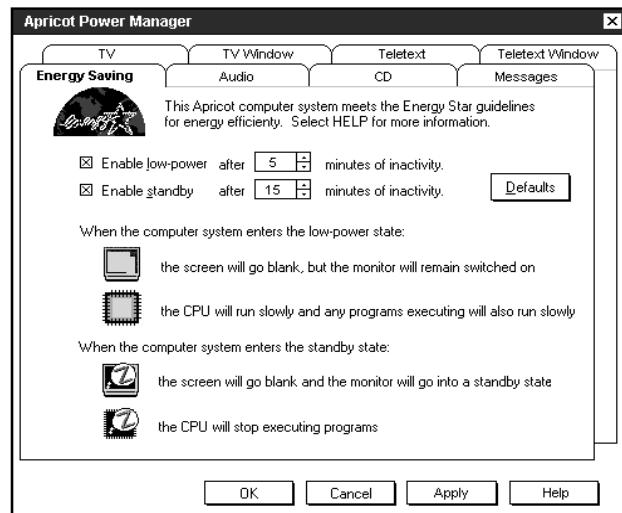
The system will power down into a 'standby' state if it has been left idle for 15 minutes (default setting) or by pressing the purple standby button on either the front panel of the system or the remote control.

As you become more familiar with your system you may wish to change some of the actions of your system. It is advisable that inexperienced users *do not* attempt to alter any settings as you may cause incorrect components to power down whilst using certain applications.

The Power Manager application is accessed by double-clicking the following icon in the Windows 95 taskbar:



It will launch the power manager application:



Please refer to the on-line help file for further details.

The Apricot Internet Connection application

Make sure your modem is connected, as shown on the 'Apricot Welcome Mat'.

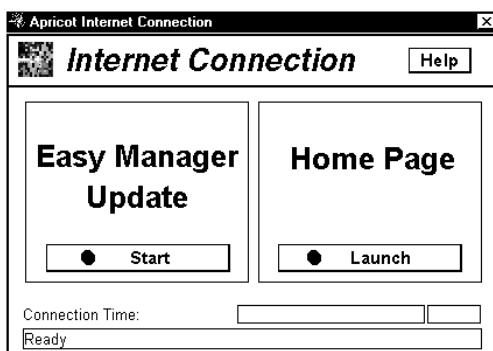
The Apricot Internet Connection application provides you with the ability to download the latest release of the Easy Manager software, and establish connection to the Apricot Web server.

The download service compares the software files on your current system with those held on the Apricot server. If there are outdated you will be provided with the opportunity of updating them. This facility allows you to obtain the latest software, and also restore the software if it is corrupted. The system will need to be rebooted in order for the downloaded files to take effect.

Connection to the Apricot web home page is made via Microsoft's Internet Explorer, and access to any World Wide Web (WWW) pages can be made thereafter.

Closing (or terminating) the Apricot Internet Connection will subsequently close Microsoft Internet Explorer. You will also be requested at this point whether you wish to disconnect the modem link. It is advisable to do so to ensure the proper release of your telephone line.

There is an on-line help file available with the application if more information is required.



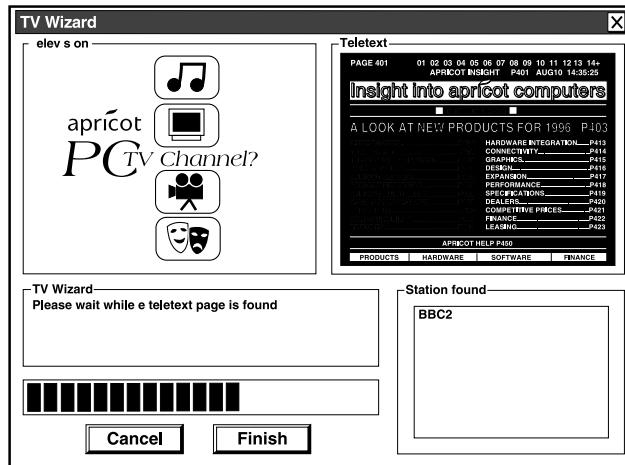
If you are experiencing problems with your modem connection then refer to the '*Troubleshooting*' chapter of this manual for details.

The Apricot TV/Teletext application (Optional)

Caution

Before using the TV/Teletext application, with its setup Wizard, ensure that you have a good and reliable aerial connection.

The Apricot TV/Teletext application provides full TV with integrated Teletext support. You can access the TV application by pressing the TV button on the remote control. Pressing this button for the first time activates the TV Wizard, shown below:



The TV Wizard will automatically tune into your local channels and set the correct channel names, numbers and Teletext pages. Once complete, the TV will start up in full screen mode.

Pressing the TV button on the remote control will toggle the TV application between its various display modes: full screen, window, and backdrop.

Pressing the right mouse button anywhere on the TV application causes a pop-up menu to appear allowing you to adjust various settings.

Please refer to the on-line help file for further details.

This chapter contains instructions on installing expansion cards in your computer. It is important that you read this chapter *before* purchasing a card.

If, having read the installation instructions, you do not feel confident about installing the upgrade yourself you may wish your supplier or service organisation to fit the card for you.

The only tool required is a small cross-head screwdriver.

Warning

Never carry out any work on the equipment with power applied. Always switch off at the mains and remove the power lead from the equipment before starting work.

Your computer can accept various expansion cards or boards. Most are simple to install with the benefit of the 'Plug and Play' features, explained in the guide to Windows 95. (Look out for the 'Plug and Play' (PnP) symbol on the packaging of these add-in boards.) You can extend the capabilities of your computer, for example:

- ◆ A graphics/movie card can provide more specialised video functions.
- ◆ A television card can enable you to watch TV on your monitor and capture individual frames.
- ◆ A network card can connect you to a Local Area Network (LAN) or a Wide Area Network (WAN)

Caution

This system complies with the CE marking directive and its strict legal requirements. Use only Apricot tested and approved parts. Failure to do so may result in invalidating both the compliance and your warranty. All expansion cards or upgrade components must carry CE marking.

Configuring the card

The Plug and Play (PnP) feature of 'Peripheral Component Interface' (PCI) cards allows Windows 95 (and other PnP-aware

Expansion cards

operating systems) to configure the card automatically when you turn on the computer.

You need to use the **Add New Hardware** utility (which is located in **Control Panel**) in order to configure the card if Windows 95 does not auto-detect it. Full instructions are provided on-line.

The documentation accompanying the card should tell you what is required. Remember to check any diskettes supplied with the card for README or other help files, **before** you start. If you are in any doubt consult the supplier or manufacturer.

If manual configuration is required, usually with 'Industry Standard Architecture' (ISA) cards, then you will probably need to specify at least two of the following:

- ◆ Interrupt request level (IRQ)
- ◆ Direct memory access (DMA) channel
- ◆ Base input/output (I/O) port address
- ◆ Base memory address

The important thing to understand is that the settings used by the card **must** be different from the settings used by the other hardware in the computer, whether another card or a component on the motherboard, the settings must not **conflict**.

Some settings are done by jumpers and/or switches on the card and are best done **before** installation, others are configured by running installation software after installation. Some cards use a mixture of both methods.

Cards often come with pre-configured or default settings. It is best to rely on these settings as much as possible, and change them only if they conflict with other devices.

ISA Interrupt request level (IRQ)

The interrupt request level or IRQ (the two terms are used interchangeably) is the line over which the expansion card sends a signal to get the attention of, or interrupt, the processor. Many of these are reserved for components on the computer's motherboard.

Some of these interrupts are fixed, others can be re-assigned, or freed by disabling the component with BIOS Setup.

The following table lists the interrupts used by the computer and shows which may be available for use by expansion cards.

IRQ	Default assignment	Available?
IRQ0	System timer	No
IRQ1	Keyboard controller	No
IRQ2	System	No
IRQ3	Serial port 2	Optionally
IRQ4	Serial port 1	Optionally
IRQ5	Audio	No
IRQ6	Diskette controller	No
IRQ7	Parallel port	Optionally
IRQ8	Real time clock	No
IRQ9		Yes
IRQ10		Yes
IRQ11		Yes
IRQ12	Mouse	No
IRQ13	Coprocessor	No
IRQ14	Primary ATA/IDE interface	No
IRQ15	Secondary ATA/IDE interface	No

Note

If you disable the interrupt which has been assigned to serial port 2 you will disable the IR sensor used for the optional infra-red remote control.

IRQ3 is available if you disable serial port 2 with the BIOS Setup utility.

IRQ4 is available if you disable serial port 1.

Do not disable either one unless you have no intention of using the affected port. Similarly, if you have no intention of using the parallel port, you can disable it with the BIOS Setup utility, completely freeing IRQ7 for use by an expansion card.

Expansion cards

Direct memory access (DMA) channel

Some hardware devices can use a DMA channel to access system memory without directly burdening the processor. Computers have DMA channels numbered DMA0 to DMA7. The following table gives details of which ones may be available.

DMA	Default assignment	Available?
DMA0		Yes
DMA1	8-bit Audio	Optionally
DMA2	Diskette/floppy disk controller	No
DMA3	Enhanced Capabilities Port (default)	Optionally
DMA4	System	No
DMA5	16-bit Audio	No
DMA6		Yes
DMA7		Yes

Base input/output (I/O) port address

I/O ports are used by the processor to communicate with hardware devices. Some expansion cards are also controlled by I/O ports. The base I/O port address specifies where the card's ports begin. The following table lists the I/O ports used by devices on the motherboard. Any ports not listed below may be available for an expansion card. This extensive list continues on the next page.

I/O ports	Default assignment
000h-01Fh	DMA controller 1
020h-021h	Interrupt controller 1
034h, 038h, 03Ch	Alternate Local bus ATA/IDE
040h-05Fh	System timer
060h-06Fh	Keyboard controller
070h-07Fh	Real-time clock, NMI mask
080h-09Fh	DMA page register
0A0h-0A1h	Interrupt controller 2
0B4h, 0B8h, 0BCh	Local bus ATA/IDE

I/O ports	Default assignment
0C0h-0DFh	DMA controller 2
0F0h, 0F1h	Math coprocessor busy (clear/reset)
0F8h-0FFh	Math coprocessor
1F0h-1F7h	Hard disk drive controller
200h-207h	Game I/O (disable)
220h-22Fh, 230h-233Fh	Sound blaster system
240h-24Fh, 250h-253Fh	Alternate Sound blaster system
278h-27Fh	Parallel port 2
2B0h-2DFh	Alternate VGA
2F8h-2FFh	Serial port 2
300h-301Fh	Alternate MIDI (disable)
330h-331Fh	MIDI
378h-37Fh	Parallel port 1
388h-38Fh	FM synthesiser
3B0h-3BFh	Monochrome display and printer adapter
3B4h, 3B5h, 3BAh	Video subsystem
3C0h-3C5h	VGA
3C6h-3C9h	Video DAC
3CAh-3DFh	VGA
3F0h-3F7h	Diskette drive controller
3F8h-3FFh	Serial port 1

Base memory address

Some expansion cards are fitted with memory of their own, usually read-only memory (ROM) containing functional extensions to the computer's BIOS (basic input/output system) ROM. Some cards also have random-access memory (RAM).

In order that this memory can be recognised by the system processor, it must be mapped somewhere within the computer's own address space. By setting the base memory address you specify where the card's memory begins within the address space. Typically, an expansion card's memory must be mapped onto the addresses

Expansion cards

between C8000h and DFFFF in upper memory. With most modern expansion cards this is fully automatic.

The card's documentation should list its possible base memory addresses. You will also need to know how much memory the card has, so that you can leave the right gap between this card's base address and the next.

Cards often come with pre-configured or default settings. It is best to rely on these settings as much as possible, and change them only if they conflict with other devices.

Installing the card

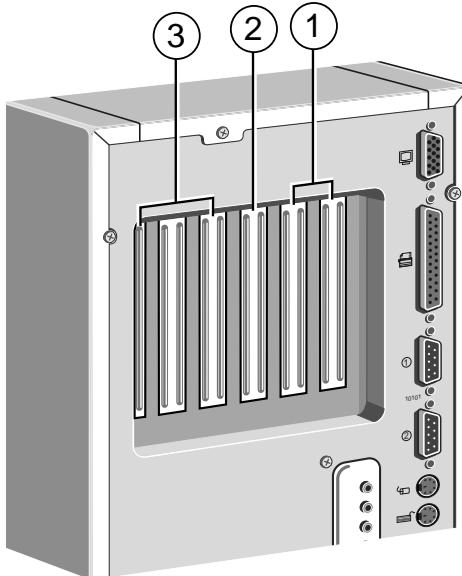
Installing expansion cards can be one of the most difficult operations you may ever perform within your computer. If you are in any doubt, or come into difficulties you are unable to resolve, contact the supplier of the expansion card or ask your Apricot dealer for advice or assistance.

1. Turn off the computer and unplug all power cords. Take suitable anti-static precautions and remove the system side and top panels. Detailed information is given in chapter 1.

Note

If you are unfamiliar with the recommended anti-static precautions, refer to the antistatic section at the rear of this handbook.

2. At the rear of the system unit are metal blanking plates, one for each expansion card slot. To ensure the front edge of a full length card is securely supported you will find card guides on the front of the machine on the rear of the fan assembly.
3. First decide in which of the available slots you wish to install the card. Note that some cards will only fit in certain slots.
4. Remove the blanking plate of the chosen slot by removing its securing screw, then sliding the blanking plate out of its slot. Keep the screw, it will be needed later to secure the card.



- | | | | |
|---|---------------------------------|---|-----------------|
| 1 | Full length PCI | 3 | Full length ISA |
| 2 | Full length PCI/ISA shared slot | | |

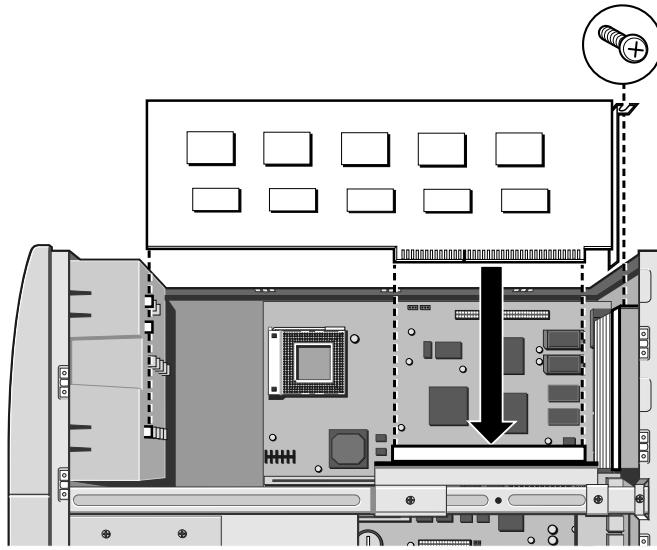
-
5. If the card you are installing is configured by the means of jumpers or switches, check that it is correctly configured before proceeding.
-

Note

If the card uses the video feature connector (VFC) on the motherboard, you may need to connect this before you install the card (otherwise, the card could get in the way of the connector). Please also refer to the notes given below.

6. Position the expansion card alongside the slot in which you wish to install it. If the card is full length, align the end of the card with the slot in the rear of the fan assembly.
7. Slide the card into the slot ensuring that the card edge connector engages correctly with the socket on the riser board. **Do not** use excessive force.

Expansion cards



8. Secure the card by replacing the screw that you removed in Step 4.
9. Connect any necessary signal cables to the card. If the card that you are installing makes use of the ATI Multimedia Channel (AMC) connector then you need to connect the ribbon cable to the AMC/VFC connector on the motherboard.

Warning

The AMC connector is an extension to the VFC and has extra pins for supporting multimedia modes. Be extremely careful when connecting the ribbon cable to the AMC/VFC connector. Some of the pins carry power and any improper use can result in damage to the upgrade board.

10. Check to ensure no other cables or connectors have become dislodged and replace the system unit cover.
11. Read the manuals supplied with the card and follow any other installation requirements, such as software etc.

6

SYSTEM UPGRADES

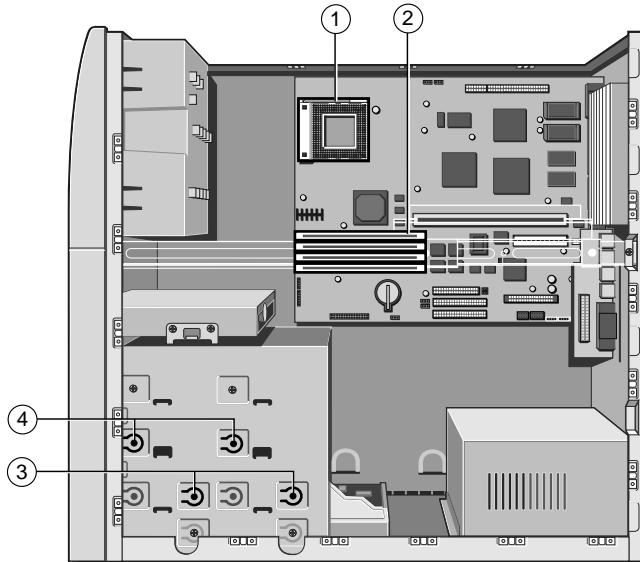
This chapter contains instructions on installing **upgrades** to your system. Memory, processors, hard drives and other drives are covered.

Caution

Apricot Computers Ltd. tests many types of components from a variety of manufacturers and all of our upgrade parts are guaranteed. The quality, reliability, or compatibility of components obtained from any other source cannot be guaranteed and may invalidate your warranty.

Read this chapter *before* purchasing any upgrade. If, having read the relevant instructions, you still do not feel confident about installing the upgrade, you may wish to have your supplier or service organisation install it for you.

The only tool required is a small cross-head screwdriver.



- | | |
|--------------------|------------------------------|
| 1 System processor | 3 Slot for second hard drive |
| 2 Memory banks | 4 Bay for accessories/drives |

All ribbon and power cables are removed for clarity.

Adding more system memory

The computer's motherboard is fitted with sockets for up to four SIMMs (single in-line memory modules). You may need to add more memory if you want to run complex operating systems or large application programs.

The SIMMs sockets are located at the front of the motherboard. SIMMs with capacities of 2, 4, 8, 16, or 32 Mbytes are supported, giving a maximum capacity of 128 Mbytes. Extended Data Output (EDO) 60nS SIMMs **must** be used. SIMMs **must** be fitted in matching pairs, i.e., fill either bank:

- ◆ There are two pairs or banks of sockets. The sockets labelled MM1 and MM2 form Bank 1, and the sockets labelled MM3 and MM4 form Bank 2.

Hint

It is sometimes difficult to install SIMMs in their sockets when the adjacent sockets are occupied. You may therefore need to remove the existing SIMMs before you can install the new ones.

Installing and removing SIMMs

1. Turn off the computer and unplug all power cords. Take suitable anti-static precautions and remove the system main side panel, as detailed in the first chapter.

Caution

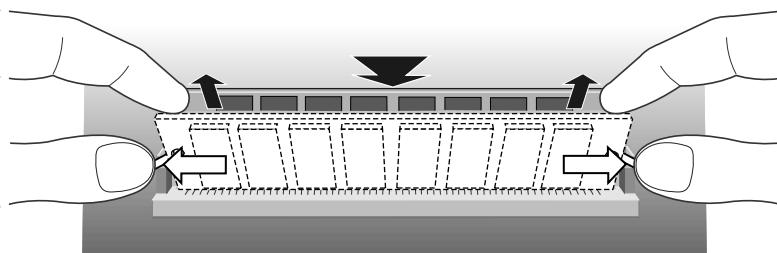
If you are unfamiliar with the recommended anti-static precautions, refer to the antistatic section at the rear of this handbook.

2. Use the illustration at the beginning of this chapter to identify the SIMM sockets. Some or all of the sockets will be occupied.
3. Compare the current configuration of SIMMs with the configuration for the memory upgrade you intend to install.
 - ◊ The following table details the supported memory configurations.

Total Memory	Bank 1 sockets		Bank 2 sockets	
	MM1	MM2	MM3	MM4
8 Mb	4 Mb	4 Mb	-	-
16 Mb	4 Mb	4 Mb	4 Mb	4 Mb
16 Mb	8 Mb	8 Mb	-	-
24 Mb	8 Mb	8 Mb	4 Mb	4 Mb
32 Mb	16 Mb	16 Mb	-	-
40 Mb	16 Mb	16 Mb	4 Mb	4 Mb
48 Mb	16 Mb	16 Mb	8 Mb	8 Mb
64 Mb	16 Mb	16 Mb	16 Mb	16 Mb
64 Mb	32 Mb	32 Mb	-	-
72 Mb	32 Mb	32 Mb	4 Mb	4 Mb
80 Mb	32 Mb	32 Mb	8 Mb	8 Mb
96 Mb	32 Mb	32 Mb	16 Mb	16 Mb
128 Mb	32 Mb	32 Mb	32 Mb	32 Mb

To remove a SIMM

1. Gently disengage the metal holding clips on each side of the socket using your thumbs, while placing your forefingers on the top edge of the SIMM. Then tilt the SIMM forward to about 15° to the vertical.

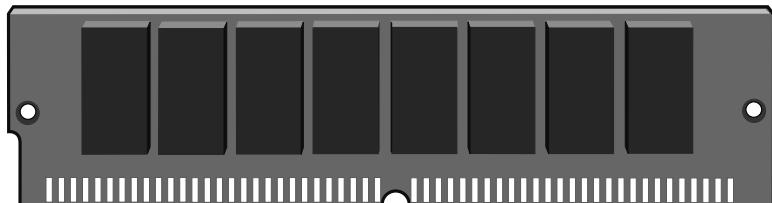


2. Lift the SIMM out of its socket. Hold the SIMM by its edges and avoid touching the metal contacts.
3. Place the SIMM in a suitable anti-static packaging.

System Upgrades

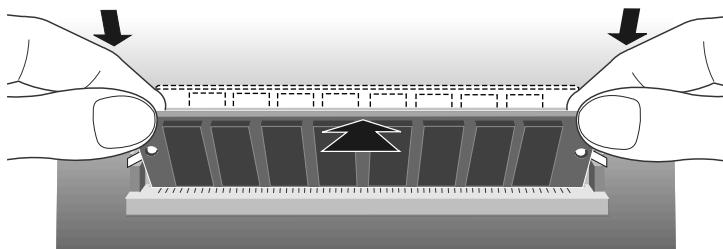
To install a SIMM

1. Take the SIMM out of its anti-static packaging. Hold it by its edges and avoid touching the metal contacts.



Note

The SIMM is not symmetrical. There are small notches in one end and also slightly off centre along the connection edge, as shown above. It will only fit into the socket one way.



2. Place the SIMM in the socket at a 15° angle to the vertical.
3. Pushing gently on its top corners, stand the SIMM upright in the socket until the pegs of the socket engage the holes on the SIMM and the metal clips hold both ends of the SIMM firmly in position. Do not use excessive force.
4. If the SIMM will not fit easily, remove it and start again.
5. Repeat these steps for each SIMM you want to install.

Reconfiguring the system

The first time you turn on the computer after adding or removing SIMMs the memory change will be automatically detected by the power-on self-test (POST). All you have to do is confirm the new configuration in the BIOS Setup utility (refer to '*System BIOS and Setup*' for more information).

If an error message occurs check that:

- ◆ You have installed a configuration supported in the list above.
- ◆ You have correctly fitted the SIMMs in their slots.
- ◆ The SIMMs are of the correct type.

It may be necessary to refit the original memory SIMMs to check if there is a problem with your new SIMMs. If in any doubt contact your supplier.

Upgrading the processor

You may wish to upgrade your processor by replacing it with one of higher performance, but check with your supplier or Apricot dealer as to the type and availability of replacement processors. The most suitable for this system is a processor selected from the same range as the currently fitted one.

The system supports a range of external clock speeds of 50, 60 and 66 megahertz (MHz). The clock speed is set by adjusting jumpers on the motherboard. Note that the external clock speed is lower than the processor's internal clock speed, which is usually the one advertised. The ratio of the internal and external clock speeds is known as the 'processor clock multiple'.

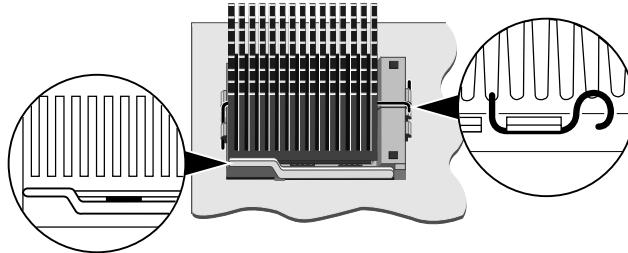
Removing the old processor

1. Turn off the computer and unplug all power cords. Take suitable anti-static precautions and remove the system main side panel and top panel. Detailed instructions for this are given in chapter 1.

Caution

If you are unfamiliar with the recommended anti-static precautions, refer to the antistatic section at the rear of this handbook.

2. If the computer was turned on prior to commencing this procedure, *wait at least 15 minutes* for the processor to cool down before proceeding.
3. Use the illustration at the beginning of the chapter to locate the ZIF processor socket. The lever attached to the socket secures the processor in the socket.
4. You will need to remove the heatsink retaining clip *before* you attempt to lift the lever which secures the processor into the socket.
 - ◊ If your upgrade processor is not supplied with a built-in heat sink or cooling fan, you will have to re-use the heat sink currently attached to your old processor.
5. Lift this lever (shown below) from its locked position until it is upright (at right-angles to the motherboard). The first and last 15° of movement may require significant effort. Apply just enough pressure to overcome the resistance offered by the lever.



6. Lift the processor out of the socket and place it on an anti-static surface outside the system unit. Hold the processor by its edges and avoid touching the metal pins.

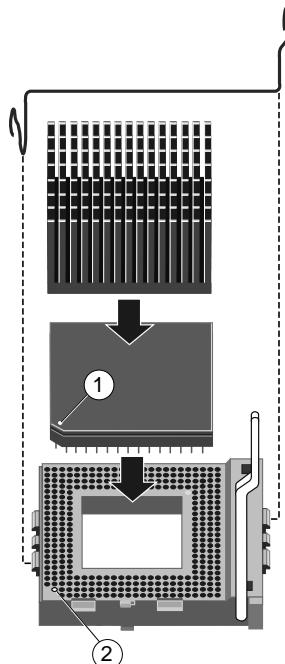
Caution

If the processor does not lift easily out of the socket, do not attempt to force it. Wait for the processor to cool down.

Fitting the new processor

To fit the upgrade processor:

1. Take the upgrade processor out of its anti-static packaging. Hold the processor by its edges and avoid touching the metal pins.
 - ◊ The upgrade processor and the ZIF socket are keyed to ensure that the processor is installed in the correct orientation. One corner of the socket has a key hole (see below). The corresponding corner of the processor is slightly bevelled and has a positioning guide in the form of a coloured dot.



1	Keyed corner
---	--------------

2	Positioning guide
---	-------------------

2. Ensure that the securing lever on the ZIF socket is still in the upright position, then place the processor in the socket, making sure that it is correctly aligned and that you do not bend or otherwise damage the pins.

Caution

If the processor is misaligned it will not go into the socket, and any attempt to force it will damage the processor, or the socket, or both

4. Move the securing lever to the locked position. Apply just enough pressure to overcome the resistance offered by the lever.
5. If necessary, place the heat sink into position on top of the new processor. The vanes of the heat sink must be aligned with the airflow from the fan in front of the processor. Refit the clip that secures the heat sink to the processor.
6. You will need to adjust the processor speed selection jumpers on the motherboard. See the chapter '*System motherboard*' for more information about locating and adjusting jumper settings.
7. If necessary replace the expansion cards you removed earlier.
8. Replace the system panels.

Adding a second hard disk drive

Your computer can support more than one IDE hard disk drive. A second hard drive can be fitted directly above the existing one if required. Depending on the new drives mechanical size, the adapter plate fitted in the drive bay, for the smaller type of hard drive, may need to be removed.

Once fitted the drive will require preparation in order to write or read from it. Consult your software guide and Windows 95 help for information on partitioning and formatting hard drives. DO NOT attempt to alter the partition information on your existing drive as this will completely destroy all information held on the drive.

If you do not feel confident about the procedure you could have your supplier or service organisation complete it for you.

Caution

Apricot Computers Ltd. tests many types of hard drives from a variety of manufacturers and all of our upgrade parts are guaranteed. The quality or compatibility of drives obtained from any other source cannot be guaranteed. Any damage caused by fitting non approved drives will not be covered by the system warranty.

Installing the drive

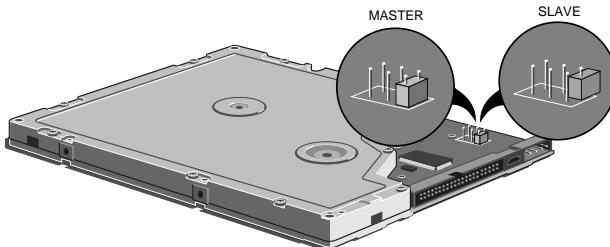
To install the hard disk drive:

1. Turn off the computer and unplug all power cords. Take suitable anti-static precautions and remove the system side panels. Detailed instructions for this are given in chapter 1.

Caution

If you are unfamiliar with the recommended anti-static precautions, refer to the antistatic section at the rear of this handbook.

2. Carefully remove the lowest front bezel blanking insert by pushing it off from the rear with a blunt point. A hole for this is provided inside the system, alongside the metal drive cage.
3. Pull out the blanking plate on the front of the internal drive bay metalwork.
4. Check the master/slave link on the new hard drive is set for 'slave' drive. The link across 'DS' should be removed but kept for safety by placing it onto one of the pins. A typical drive:



5. Remove any fitted drive mounting plate from the drive bay and put to one side if not required for the new drive.
6. Slide the new hard drive, (with the drive mounting plate fitted if required) into the drive bay from the front and secure it with the screws into the space immediately above the existing hard drive.
7. Connect a power cable from one of the available unused ones.
8. Connect the hard drive ribbon cable to the new drive. The ribbon is striped to indicate pin 1, which goes to the end nearest the power connector.
9. Refit the system side panels, metal plate and front bezel.

Fitting new drives/accessories

The new drive should have fixing and installation instructions with it, making it a fairly simple task. If you do not feel confident about the procedure you could have your supplier or service organisation complete it for you.

1. Turn off the computer and unplug all power cords. Take suitable anti-static precautions and remove the system side panels. If the device has a control card, it will be necessary to remove the top panel. Detailed instructions for this are given in chapter 1.

Caution

If you are unfamiliar with the recommended anti-static precautions, refer to the antistatic section at the rear of this handbook.

2. Carefully remove the front bezel blanking insert by pushing it off from the rear with a blunt point. A hole for this is provided inside the system, alongside the metal drive cage. (If a second hard drive has been fitted, the lower bay is not available).
3. Pull out the blanking plate on the front of the internal drive bay metalwork.
4. Check in the supplied documentation, before installation, for any configuration jumpers and links that may need setting.
5. Carefully slide the new device into the bay from the front and secure it with screws on both sides. Make sure that the front of the device is aligned as close as possible to the front bezel.
6. Connect a suitable power cable from one of the available unused ones.
7. Install any control card supplied with the drive, by following the detailed information given in the preceding chapter.
8. Follow any additional instructions provided as regards to signal cable connection etc.
9. After checking that no other cables have become dislodged or trapped, refit the system panels.
10. Follow any further instructions as given in any supplied manuals, such as software or configuration requirements.

TROUBLESHOOTING

This chapter offers advice if you suspect a fault with your computer. It is concerned mainly with problems caused by the computer itself, problems more often arise from other sources such as your operating system or application software.

It must also be remembered that it can be very easy to leave off or dislodge cables and connectors inside the computer when fitting expansion cards, or upgrading the motherboard, or indeed anything that may require temporary removal of the system cover.

If in doubt

Turn off the computer and unplug the power cord before consulting your supplier or maintenance provider. Make a note of any of the symptoms, error codes, display messages etc., before calling.

Problems when starting

If you suspect a blown fuse

In the United Kingdom, and some other countries, AC plugs contain fuses. Your Apricot computer is initially supplied and fitted with the correct fuse for operation in the country in which it is sold. If the fuse in the system's unit AC plug blows when you turn on the computer, this may be caused by an AC power surge, but is more often a symptom of problems with the computer or its peripherals. Follow these steps:

1. Turn off the computer and unplug all power cords.
2. Unplug all peripherals.
3. Try to discover the cause of the fault. If none is apparent, replace the blown fuse with one of the same rating, reconnect the system unit power cord and try to turn it on again.
4. If the replacement fuse blows, call your supplier or maintenance provider.
5. If the replacement fuse does not blow, reconnect one peripheral at a time and switch it on. Repeat this step for each peripheral in turn.

Troubleshooting

Power-on self-test (POST)

Whenever the computer is turned on, the power-on self-test (POST) routine tests various hardware components, including memory, and compares the actual configuration of the computer with that recorded in configuration (CMOS) memory. During this time, BIOS sign-on and POST messages are displayed.

A configuration discrepancy could arise if you have just installed or removed a hardware option (for example, if you have added or replaced a SIMM). In this case you may be diverted directly into the BIOS Setup utility.

If POST detects a hardware fault, one or more POST error codes and messages are displayed. A full list of these is given at the end of '*System BIOS and Setup*'. You may also be prompted to "Press the F1 key to continue" or "Press any key when ready". The computer may be able to continue despite the error indication (for example, if a memory chip fails POST, the computer can continue with less memory).

Your first action should be to turn off the computer, wait at least 30 seconds, and then turn it on again to see if the error is transitory or persistent. Persistent POST errors may indicate a fault in the system.

- ◆ Check that all external cables are securely connected.
- ◆ Try running the BIOS Setup utility to reconfigure the system.
- ◆ Open up the system unit and check that all internal signal and power cables are securely connected.

If the problem persists, call your supplier or authorised maintainer.

Beep Codes

The computer uses special audio beep codes to signal certain hardware faults. If you hear a beep code which is not accompanied by a POST error message, call your supplier or authorised maintainer.

The system may halt completely with some of the errors and the beep code will keep repeating after a brief pause.

Number of beeps	Meaning
No beeps	If no beeps are heard at all the speaker may be disconnected or there may be a speaker circuitry fault.
One short beep	Marks the completion of POST and no functional errors found. You will also get a single beep if you press an invalid key for a power-on password.
Two short beeps	Indicates and draws your attention to an error during POST. This should be accompanied by an error message.
Three short beeps.	System memory error, normally accompanied by BIOS error code 201. Beeps are used when the video cannot display the code.
Continuous beep	Could indicate a serious failure of the system motherboard, or a failure of the speaker circuitry.
Repeating short beeps	Usually indicative of a keyboard key stuck down, but may be due to the keyboard interface failing.
One long and one short beep	POST has detected an error on the video adapter in the system. There may be no display on the screen.
One long and two short beeps	This means that either the video system is faulty, or that a video I/O adapter ROM is not readable.
Two long and two short beeps	The video subsystem cannot be supported by the main system POST. This can occur when the video subsystem is replaced or changed on site.

Many of these following codes indicate a more serious fault and the BIOS stops. Switch off for 20-30 seconds and try again. If the fault persists, make a note of it and call your maintenance provider.

Number of beeps	Meaning
1-1-3	CMOS write/read test failure
1-1-4	BIOS ROM checksum failure
1-2-1	Programmable Interval Timer test failure
1-2-2	DMA initialisation failure
1-2-3	DMA page register read/write test failure
1-2-4	RAM refresh verification failure
1-3-1	First 64K RAM test failure
1-3-2	First 64K RAM parity test failure

Troubleshooting

Number of beeps	Meaning
1-3-3	Slave DMA register test failure
1-3-4	Master DMA register test failure
1-4-1	Master interrupt mask register test failure
1-4-2	Slave interrupt mask register test failure
1-4-4	Keyboard controller test failure
2-2-2	Search for video ROM test failure
2-2-3	Screen believed inoperable
2-2-4	Timer tick interrupt test failure
2-3-1	Interval timer channel 2 test failure
2-3-3	Time-of -day clock test failure
2-4-3	CMOS memory size against actual compare failure
2-4-4	Memory size mismatch occurred

Failure to boot

On completion of POST, the computer attempts to boot from a system diskette or bootable hard disk partition. The table below lists some of the messages that might appear during the boot sequence.

Boot failure message	Explanation
Non-system disk or disk error	The diskette drive contains a non-system diskette. Replace it with a system diskette and press F1.
Diskette read failure	The diskette is either not formatted or defective. Replace it with a system diskette and press F1.
No boot sector on fixed disk	The hard disk has no active, bootable partition or is not formatted. Insert a system diskette, press F1, and format the hard disk as described in your operating system manuals.
Fixed disk read failure	The hard disk may be defective. Press F1 to retry. Make sure the drive is correctly specified in the BIOS setup utility. If the

Boot failure message	Explanation
No boot device available	problem persists, insert a system diskette, press F1, backup the data held on the defective hard disk and try reformatting it. This may indicate a fault in the diskette or hard disk drive, or perhaps a damaged system diskette. Press F1 to retry, using another system diskette, if possible. Make sure that the Startup Devices option is correctly specified with the BIOS Setup utility. If the problem persists contact your supplier or authorised maintainer.

Restoring the software

In the event of a complete disaster the original software can be restored by means of the Recovery CD which is supplied in a special sealed pack with the system. Full instructions are provided with this pack.

It should not need to be used other than for a complete system restore as it will wipe all previous software from the hard drive.

Troubleshooting checklist

If you encounter a problem with the computer the following sections suggest checks to make before you alert your dealer, authorised maintainer or support organisation. The checks listed cover the causes of common problems.

Connections

Check that all power and signal cables are securely connected to the correct port on the computer.

The keyboard and mouse are particularly easy to connect into the wrong port. Although the connectors are identical, the keyboard will not work if plugged into the mouse port, and vice versa.

The two serial ports also appear identical. If you have a problem make sure that the cable is connected to the port you are trying to use.

Troubleshooting

Power

Check that the AC power supply is switched on, and that the fuse in the AC plug (if any) has not blown. If the system still does not seem to be getting power, obtain another power cord from your supplier.

Monitor

If there is no display check that the monitor is turned on, and the brightness and contrast controls are not too low.

If you have fitted a new video controller expansion card and subsequently encounter problems try disabling the on-board video controller by removing a jumper from the motherboard. See the chapter '*System motherboard*' for more information.

Expansion cards

If an expansion card does not work, check that all internal cables are securely connected, that the card is configured correctly, that its use of system resources does not conflict another card or motherboard component, and that legacy resources (if it is an ISA card) are properly declared in the BIOS setup utility. Check also that the software which drives or uses the card is correctly configured. Check in the chapter, '*Expansion Cards*' for information, and in '*System BIOS and Setup*' to see whether your chosen settings are useable.

Modem

Run a terminal program, such as HyperTerminal (in Windows 95) to start troubleshooting. Then type AT [Return] for a simple check of modem operation, it should return 'OK'.

1. Text typed in on the keyboard does not appear on screen.
 - ◊ Check that communication software is configured with the correct COM port and IRQ settings (the same COM port and IRQ as the modem). Your communication software will not be able to send and receive any data via your modem if these settings are incorrect.

Troubleshooting

- ◊ Check that the modem's IRQ and COM settings do not conflict with other peripherals already present in your system. Go to 9.
- ◊ Check that the modem is correctly seated in the socket and securely screwed into place.
- 2. Modem will not dial and produces a no dial tone response.
 - ◊ Check telephone wiring.
- 3. Modem dials but goes dead on connection, or modem dials but connect response does not appear.
 - ◊ Check that communication software is configured with the correct IRQ setting (the same IRQ as the modem).
 - ◊ Check telephone wiring.
- 4. Modem dials, connect response appears and then the modem goes dead.
 - ◊ Check that your communication software has been set up for use with the correct modem type and model.
 - ◊ Check that your modem's word length, parity and stop bit settings are the same as the modem you are trying to communicate with.
 - ◊ Check that you are using the same terminal emulation mode as the remote system.
 - ◊ After making a connection press the return key a few times, the remote system may be waiting to receive your data before it begins.
 - ◊ Check that modem's IRQ and COM settings do not conflict with other peripherals already present in your system. Go to 9.
- 5. Modem dials, connection garbled.
 - ◊ Check that your modem's word length, parity and stop bit settings are the same as the modem you are trying to communicate with. A typical set up would have 8 data bits, 1 stop bit and no parity (sometimes referred to as 8-N-1).

Troubleshooting

6. Connection initially OK, garbled after a while, or connection initially OK, sporadically garbled.
 - ◊ Check that error correction, MNP or V.42, is enabled before dialling.
7. Modem will not hang up after a call.
 - ◊ Type +++ATH to manually hang up.
8. Modem will not auto-answer.
 - ◊ To use a terminal program to auto-answer, type ATS0=1.
 - ◊ Check cabling.
 - ◊ Check that combined REN (Ringer Equivalence Number) of all devices on the line are less than or equal to 4.
9. Check that the modem's IRQ and COM settings do not conflict with other peripherals already present in your system.
 - a) Double-click on My Computer, then select Control Panel/ System/ Device Manager.
 - b) Double-click on the modem icon to display the Dataflex Modem.
 - c) Select the Dataflex Modem by clicking once on the Dataflex Modem text.
 - d) Select Properties/ Resources. Check that the Conflicting Device List gives a 'No conflicts' message.
 - e) If there is a conflict, follow these steps.
 - ◊ Refresh the modem's IRQ and COM settings such that they do not conflict with other peripherals already present in your system.
 - ◊ Select the Dataflex Modem (follow steps 9 a, b, c).
 - ◊ Click on the Remove button.
 - ◊ Click on the Refresh button.
 - ◊ Select Properties/ Resources. Check that the Conflicting Device List gives a 'No conflicts' message.

Remote control

First of all check the batteries. Try the batteries in a torch or something similar, replace them if necessary. Check also that the front window is not obscured on either the system unit or the handset. Periodic cleaning with a soft cloth is advised.

System BIOS

Check finally the system BIOS to ensure that it has not been disturbed from the original settings. If the settings appear to have altered, or need to be entered every time you turn on the computer, there may be a fault with the CMOS battery. The normal battery life is between 3 and 5 years.

See '*System motherboard*' for details on fitting a new CMOS battery, and '*System BIOS and Setup*', for information about system BIOS settings.

The system's disk drives

Refer also to Chapter 2, '*Using your computer*'.

Floppy disk drive

If you have problems accessing a diskette or floppy disk, check that it is inserted correctly, that it has been correctly formatted, that it is not write-protected, and that the permissions assigned by the BIOS allow the intended access. Some application software also may not allow you to read or write to floppy disks during certain other operations, or until you are about to exit the programme.

CD-ROM drive

If you have problems accessing a CD, check that you have allowed a few seconds for the disk to spin up to full speed, that the disk is the correct way up in the drive, printed side upwards, and that it is a data CD. Remember that with a conventional CD-ROM drive you cannot write to a CD.

Troubleshooting

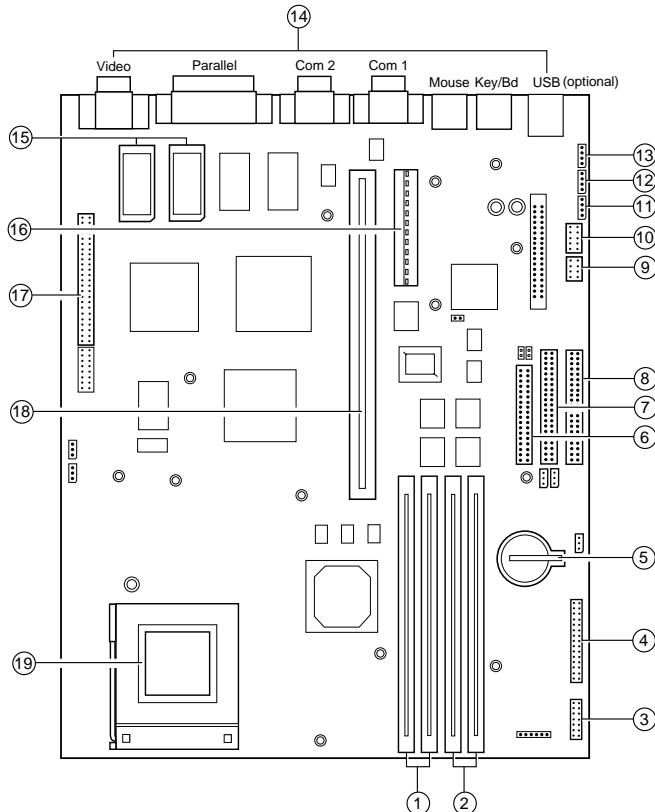
Optional PD drive

Check the type of media in the drive, CD or PD disk cartridge. Remember that the PD cartridge needs the disk inside to be formatted to allow it to be written to. There is also the write protect tab to check.

Make sure that you are trying to access the drive by the correct icon for the media in use.

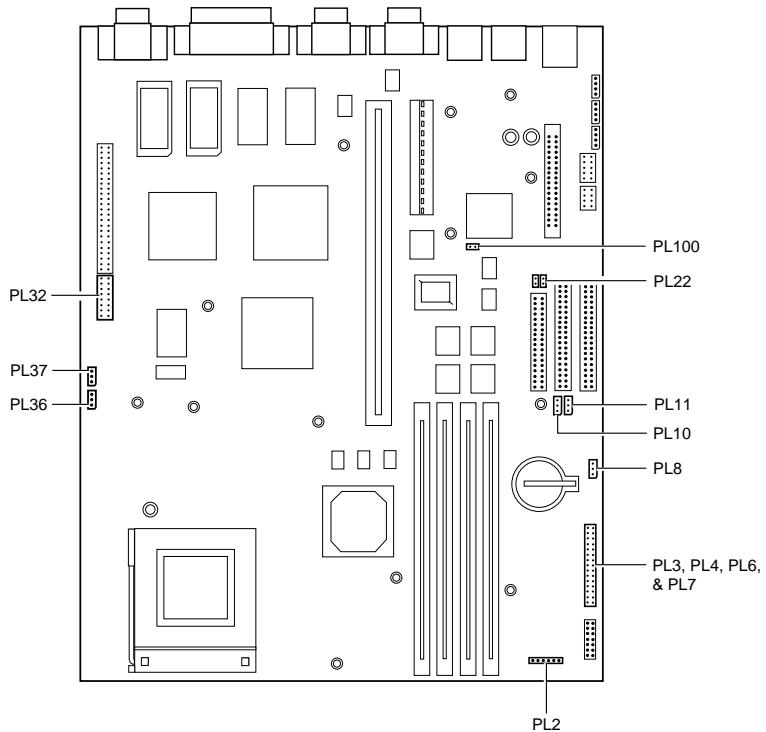
Hard disk drive

If you encounter problems accessing the hard disk drive, use the BIOS Setup utility to check that the drive is correctly specified, and that the drive's controller is enabled. Check also that the disk has been correctly formatted, and that the permission assigned by the operating system allow the intended access.

Principal features

1	Memory sockets 1, 2 (SIMMs)	11	Radio card audio connector
2	Memory sockets 3, 4 (SIMMs)	12	TV card audio connector
3	PL20, Front panel connector	13	CD audio connector
4	Pls 3, 4, 6, 7 Case feature connectors	14	External ports
5	CMOS Battery (type CR2032)	15	Video memory sockets
6	Floppy drive ribbon connector	16	Power supply connections
7	Secondary IDE connector (CD-ROMs)	17	Video feature connection (VFC)
8	Primary IDE connector (HDDs)	18	Expansion riser board socket
9	Wave table connection	19	Processor ZIF socket
10	Modem audio connector		

Changing the Jumper settings



Caution

Do not alter any jumper settings under normal operation. You may cause permanent damage to the motherboard or its components.

All jumpers are factory set and should not normally be changed.

'1-2' = jumpers should be fitted across pins 1 and 2.

'2-3' = jumpers should be fitted across pins 2 and 3, etc.

'Open' or 'O' = no jumpers should be fitted.

'Closed' or 'X' = jumpers should be fitted

On the motherboard, pin 1 of each block is indicated by a small triangle marking.

Clear BIOS settings, PL8

Moving the link to pins 2-3, from the default position 1-2, disconnects the battery from the CMOS and will erase all the system settings. This should only be used as a last resort in the event of a password being totally lost and the link should be immediately returned to its original position. All the BIOS settings will need to be re-entered, see the chapter 'System BIOS and setup'.

Clearing CMOS	PL8
CMOS battery connected (default)	1-2
CMOS erase, >1 second to discharge	2-3

BIOS re-program, PL10, PL11

These links are for an official upgrade to the motherboard BIOS. They must not be moved for any other reason. Special software is required and the task should be carried out by authorised engineers.

Recovery, PL10	Re-program, PL11
1-2, normal	1-2, enable
2-3, recovery	2-3, normal

Floppy disk control mode, PL22

Floppy disk mode, PL22	Link pins
Full 3-mode operation	1-3
<i>3rd mode, 1.2 Mb operation available in Japan only</i>	

System Fan

Pins	CPU Fansink PL37	Pins	Main fan PL36
1	Ground	1	Ground
2	+12 volt supply	2	Controlled supply
3	Fan Fail	3	Ground

Soundblaster enable, PL100

Normal link 1-2, remove to disable sound.

System motherboard

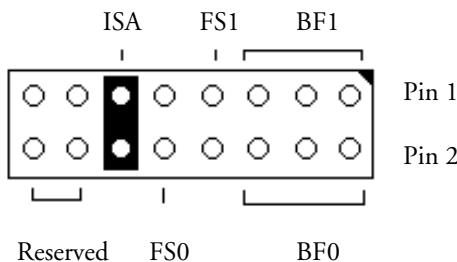
Internal speaker connections, PL2 (if fitted)

Pins	Function	Connection PL2
1	Stereo - Left	Left (stereo) speaker = pins 1 and 2
2	Audio ground	
3	Mono	Mono = pins 3 and 2
4	Link	Link 4 and 5 for mono
5	Stereo - Right	Right (stereo) speaker = pins 5 and 6
6	Audio ground	

Processor and BUS clock, PL32

Warning

Do not alter these links under normal circumstances as it could destroy the processor or other vital components on the board.



The 'ISA' link on 11-12 must be fitted on all processors above 100Mhz. Any links fitted on 13-14 or 15-16 are reserved and must not be moved.

Processor	Jumper block PL32			
	Multiplier		Bus frequency	
Pentium	BF1	BF0	FS1	FS0
100 MHz	1-3	2-4	7-8	O
120 MHz	1-3	4-6	O	9-10
133 MHz	1-3	4-6	7-8	O
150 MHz	3-5	4-6	O	9-10
166 MHz	3-5	4-6	7-8	O
200 MHz	3-5	2-4	7-8	O

System Connectors

The following system connectors are used to connect various features to the motherboard. You should not normally need to disturb these connections but they may become dislodged during work inside the system casing.

PL3	Pins	Pins	PL4
Power switch (PSU control)	1	1	Standby switch
return	2	2	Standby switch return
PL6		3	Vcc
(Connected to pin 6)	1	4	Keyed
Keyed	2	5	IRDA input
Hard disk LED signal	3	6	Ground
Hard disk LED return	4	7	IRDA output
Ground	5	8	Ground (speaker return)
Keylock switch	6	9	Not used
Keylock switch return	7	10	Not used
Power ON LED signal	8	11	Speaker out (BEEP)
Power ON LED return	9	12	Message LED
Standby LED signal	10	13	Message LED return
Standby LED return	11	PL7	
Reset switch return	12	1	Not used
Reset switch	13	2	Not used

Front panel connector, PL20

Analogue ground	1	2	KEYED
No connection	3	4	No connection
No connection	5	6	No connection
Message LED (control 2)	7	8	No connection
Message LED (control 1)	9	10	5 V supply (fused)
IR transmit	11	12	RTS
IR receive	13	14	Digital ground

Replacing the CMOS battery

The battery has an average life of 3-5 years. If you have to reconfigure the computer every time you turn it on, the battery has discharged and needs replacing. The battery is a 3 volt lithium type CR2032 (or equivalent).

To replace the battery

1. Turn off the computer and unplug the power cord. Take suitable anti-static precautions and remove the system main side panel.
 2. Identify the battery and holder (No5 on the diagram at the front of this chapter) on the motherboard.
-

Warning

Do not use a metal or other conductive implement to remove the battery. If a short-circuit is accidentally made between its positive and negative terminals, it may cause the battery to explode.

2. Lift the edge of the battery far enough to clear the base of the holder, then slide the battery from under the contact spring.
3. Check the replacement battery is identical to the old battery.
4. Taking care not to touch the top or bottom surface of the battery, pick up the replacement with the positive (+) terminal upwards.
5. Slide the battery into the holder from the same side the old battery was removed.
6. Refit the system side panel.
7. Dispose of the old battery according to the maker's instructions.

When you turn on the computer you will have to run the BIOS Setup utility to re-enter the hardware configuration. If in any doubt refer to '*System BIOS and Setup*'.

BIOS (pronounced ‘bye-oss’) stands for basic input/output system. The BIOS operates at the boundary between the computer’s hardware (the processor, memory and so on) and its software (the operating system and your program), and effectively mediates between the two.

The BIOS is permanently encoded in an area of read-only memory (ROM), although it can be modified if necessary by an authorised maintainer. This does require very specialist software.

BIOS Setup is a utility programmed into the computer’s BIOS ROM. Its main purpose is to allow you to view and alter the computer’s hardware configuration. It is also used to configure various security and power-saving options. Configuring the computer is necessary to ensure that the software you use can recognise and exploit the hardware’s capabilities.

The current configuration is kept in a special area of memory, called CMOS memory, and maintained by a small battery so that the configuration is preserved even while the computer is switched off.

Your computer arrives already configured, but may need to be configured again after you add or remove add-on options such as memory modules or expansion cards.

Caution

The BIOS has been set in our factory for the optimum system performance and operation. It is not advisable to alter any settings under normal use.

For your safety, you should make a note of your current BIOS settings as given on the ‘System summary’. A space for this is provided on page 13 of this chapter.

Entering Setup

Immediately after switching on the Mitsubishi logo is displayed at the top right hand corner of the screen:



While this is visible you can press the F1 key to start the BIOS Setup utility.

You cannot enter the BIOS setup at any other time or by any other method.

If Setup runs on its own

This can happen for three reasons:

- ◆ POST detects a configuration error or fault. This may be signalled by one or more of the POST error messages listed at the end of this chapter. If a persistent fault is indicated, make a note of any new error messages and the current configuration settings before calling an authorised maintainer.
- ◆ The CMOS battery may be running down. This may be signalled by spurious POST error messages. If this happens every time you turn on the computer, you may have to change the battery, instructions for this are given in the chapter: '*System motherboard*'.
- ◆ The computer's configuration may have been changed, for example by the addition of more system memory, or an expansion card. In this case you may have to define the new configuration.

Control keys

A number of keys are used to move around the BIOS Setup utility, select items on the screen and change the current configuration. The two lines at the bottom of the screen indicate what you can do at any given time. The following control keys can be used in the BIOS Setup utility:

Keys to use	Function
	Provides help on the highlighted topic, pressing it again transfers you to the general help pages.
	Exit either the setup, or go back a page if in a sub-menu.
	Scroll through a menu list.
	To toggle values or settings.
	The enter key, to select the highlighted item.
	Numbers, used in places where values are to be entered.
	Used when required, similar to numbers.
	Restores the original settings in force when you entered BIOS setup.
	To restore the original default settings. (Note: this does not restore date or time)

Main menu screen

When you start BIOS Setup a main menu screen appears with the following options:

- System Summary
- Product Data
- Devices and I/O Ports
- Date and Time
- System Security
- Start Options
- Advanced Setup
- Plug and Play
- Error Log
- Power Management

Save Settings

Restore Settings

Load Default Settings

Exit Setup

Lines with a • bullet in front of them have further menus or dialog boxes associated with them, and are described later in this chapter.

A ▲ bullet next to a line indicates that BIOS setup detected a configuration error and attempted to correct it. This will be seen if Setup launches automatically on switch on, to indicate a contentious area or a change to be investigated.

The Save Settings option saves any changes that you have made so far.

The Restore Settings option restores the settings that were in effect when you started the BIOS Setup utility (with the exception of the Date and Time settings).

The Load Default Settings option restores the BIOS default settings.

Caution

The BIOS defaults may not be appropriate for your particular system. Make a note of the current settings before using the Load Default Settings option or pressing F10.

System Summary

This page cannot be edited, but gives a summary of the system main settings. Changes made in other pages will be reflected here. Make a note (on page 13) of the information on this page before you progress any further or make any changes.

Product Data

This page cannot be edited, it gives details of the Machine Type/Model and the System Serial Number.

Devices and I/O Ports

Serial Ports A & B (COM1 & COM2)

This allows you to select the I/O ports and interrupts used by the two serial ports. It is best to leave these at the default settings. Do not disable the serial ports unless you are absolutely sure you are not going to need them.

Port B will be greyed out on those systems which are provided with an infra-red remote receiver.

Parallel Port

This allows you to set the I/O port and interrupt used by the parallel port. You can select Standard or Extended port modes. To get EPP mode you may have to change the I/O port setting.

Parallel Port Mode		Description
Standard		Used for output only.
Extended	Bi-directional	Simple two-way data.
	EPP	Enhanced Parallel Port mode.
	ECP	Extended Capabilities Port mode.

Any parallel port devices that you may wish to attach, such as a tape streamer or external hard drive etc., should have full instructions supplied with them that will tell you if the port capabilities need to be altered to one of the extended options above.

System BIOS and Setup

Mouse

This option enables the use of a mouse. The actual presence of the mouse can then be detected by POST. You should not normally disable this setting.

Diskette Controller

This option enables the use of the floppy diskette drives. You should not normally disable this setting.

Diskette Drive A/B

This lets you specify what diskette and floppy disk drives are fitted. Diskette drive A is fitted by default, and is invariably a 1.44 Mbytes 3.5" drive. You will not be required to change this setting.

Video Setup

This details the video controller and details the size of the video memory.

IDE Controller

This option enables the use of the hard drives connected to the onboard controller. It should not be disabled.

IDE Drives Setup

The motherboard's two IDE/ATA (Integrated Drive electronics AT-Attachment) interface support a total of four drives (that is, two drives per interface).

However, the computer itself can accommodate at most two hard disk drives plus one removable-media drive, typically a CD-ROM drive. The hard disk drives should be connected to the primary IDE interface, and the CD-ROM drive connected to the secondary interface.

IDE Translation Mode

Select **Extended CHS** (cylinder, head, sector) to enable the scheme that allows the BIOS to access hard disk drives of greater than 504

Mbytes capacity. You might need to select **Standard CHS** if your operating system does not support Extended CHS for large drives.

Hard Disk Drives

Hard disk size and type is auto-detected when the computer is turned on, but other parameters can be manually set for each drive should it be required. **Do not** alter any settings once your hard drive is partitioned and formatted as you risk losing all the data on the drive. CD-ROM drives are also auto-detected.

Parameter	Settings
Transfer Mode	You can either select Manual or Automatic . If you select manual then you will be required to specify the transfer mode of the hard disk drive.
Logical Block Address (LBA) Mode	Select Supported if your hard disk drive is 8 Gbytes or larger as LBA mode offers significant performance benefits.

Date and Time

Use this to adjust the motherboard's Real Time Clock (RTC). This clock is maintained by a battery while the computer is turned off.

Time

The time is in 24-hour format. Use the LEFT and RIGHT ARROW keys to move from hours to minutes to seconds. To enter new values use the number keys, or the PLUS (+) and MINUS (-) keys to increase or decrease the current setting.

Date

The date is in the usual Day / Month / Year format. The procedure for alerting the date is the same as for the time.

Once the correct date is set you should not need to set it again. The computer accounts for leap years automatically.

System Security

This is to allow you to set, change or delete passwords for either general or administrator use.

Power-on Password

This option allows you to set a password that is required every time the computer is turned on or rebooted. Only people who know the password will be able to use the computer. The password can be up to seven characters long.

To define a power-on password:

1. In the Power-on Password dialog, type the password in the ‘Enter Power-on Password’ box, then press the DOWN ARROW key.
 - ◊ To preserve confidentiality, the password is not displayed as you type it.
2. Type the password once more in the ‘Enter Power-on Password Again’ box.
3. If you want the computer to ask for the power-on password, ensure that Password Prompt is set to “On”. If this option is set to “Off”, the computer will still require the password but will **not** ask for it.
4. Choose the Set or Change Power-on Password option.
5. A dialog asks you to confirm that you want to replace any existing power-on password.
6. Press ENTER to confirm (or ESC otherwise).

Now, when the computer is next turned on or rebooted, the user is required to enter the password. If the Password Prompt is set “On”, the following prompt is displayed:

Type your password, then press Enter.

If the Password Prompt option is set to “Off”, the user is not prompted at all. The computer will boot (or if F1 is pressed during start-up the BIOS Setup utility will start) and then wait for the user to type the password and press ENTER. It is important that authorised users of the computer are told to expect this, or they may think that the computer has stopped working.

The user is allowed three attempts to enter the correct password. If they fail the computer is “locked” and must be switched off. Turning the computer on again restarts the sequence.

To delete a power-on password:

1. In the Power-on Password dialog, choose the Delete Power-on Password option.
 - ◊ A dialog asks you to confirm that you want to delete the existing power-on password.
2. Press ENTER to confirm.

Administrator Password

The administrator password works in exactly the same way as a power-on password. If you define both an administrator and a power-on password, the computer only allows you to enter Setup if you enter the Administrator’s password.

Start Options

Certain features can be set or enabled automatically when the computer boots.

Keyboard Numlock State

If set to “On” (default), the keys on the numeric keypad (on the right-hand side of the keyboard) will produce numbers when pressed. If “Off”, these keys provide cursor control functions instead.

Keyboard Speed

This sets the speed (frequency) at which a pressed key will repeat; either “Fast” (default) or “Normal”.

Disketteless Operation

If this is “Disabled”, POST will look for and test the diskette drive, and report an error if the drive is faulty or missing. If “Enabled”, POST will omit the test and continue, provided that another boot device is available (i.e. the hard disk drive).

System BIOS and Setup

Displayless Operation

If this option is “Disabled”, POST will look for an attached monitor and report an error if it is faulty or missing; if “Enabled”, POST will allow the computer to start without a monitor.

Keyboardless Operation

If this option is “Disabled”, POST will look for an attached keyboard and report an error if it is faulty or missing; if “Enabled”, POST will allow the computer to start without a keyboard.

Start-up Devices

These options allow you to specify where the BIOS looks for an operating system when it boots. If the computer cannot locate an operating system on the First Startup Device, it tries the Second Startup Device and so on.

Note that if the First Startup Device is set to “Disabled”, the computer will be unable to boot.

The possible settings depend on the number and type of devices that are installed in your computer. For example, “Diskette Drive 1” is not a possible setting without a second floppy disk drive.

By default, the First Startup Device is “Diskette Drive 0” and the Second Startup Device is “Hard Disk 0”. this should not normally need to be changed.

Power On Self Test

The POST can be selected to either run only a “Quick” set of tests or a more thorough (but longer) “Enhanced” set.

Virus Detection

If this option is “Enabled”, each time the computer boots the BIOS will check the startup device to find if a boot sector virus has crept in. This is not an infallible check against the newer types of viruses, but it can help.

Advanced Setup

Any settings changed here, if incorrect, may cause the system to halt or may cause your software to malfunction. A warning about this appears on the screen when you choose Advanced Setup from the menu.

Cache Control

A simple dialog allows you to enable or disable the computer's memory cache. Some older software is speed sensitive and on rare occasions you may need to disable the cache.

ROM Shadowing

To shadow ROM means to copy its contents into the computer's system or random-access memory (RAM). This is beneficial for two reasons: ROM has (relatively) long access times and the processor can access RAM faster than ROM; second, the contents of RAM can be cached for even greater performance. All of the computer's system BIOS ROM is shadowed.

The ROM Shadowing option allows you to shadow video BIOS and up to three 32 Kbytes areas of expansion card ROM (that is, ROM fitted on ISA or PCI expansion cards) addressed between C8000h and DFFFFh.

See the chapter entitled, '*Expansion*' for more information about addressing expansion card ROM.

Caution

Shadowing is only appropriate for expansion card ROM. It must not be enabled for expansion card RAM.

PCI Options

The only configurable PCI setting is Palette Snooping, which can be "Enabled" or "Disabled", it should be enabled only for PCI video expansion cards that require it.

Universal Serial Bus (USB)

This is available for future use with USB compatible peripherals and is set to 'enabled'.

System BIOS and Setup

Plug and Play

Enabling the Plug and Play adapter configuration will auto-configure any Plug and Play cards but any ISA adapters which do not support Plug and Play will require the system resources to be registered.

There is a separate option for each resource; memory, I/O ports, DMA and interrupts. Some areas not shown are system allocated.

Each resource can be set to either **Plug and Play** or **ISA Legacy**. If shown as *Plug and Play*, it is assumed by the system not to be in use by any ISA card or device and therefore will be made available for the PCI auto-configure process.

Although many ISA cards are very simple to configure, the resources they use, if any, **must** be registered in the BIOS. See the chapter entitled '*Expansion*' for more information about the resources used by expansion cards.

Error Log

Any errors reported during the POST routine will be logged in the Error log. It will contain the last three errors detected and can be cleared.

Power Management

The Power Management is ON as default to enable the system to comply with the Energy Star program. But it may be disabled, or overridden by the Power Manager Software in Windows95 when that is installed. See the chapter '*Multimedia applications*' for further details on power management. A simple menu is available:

Menu option	Choices
Power Management	'On' or 'Off'
Time Till (auto) Power Saving	'Disable', or range of times (<i>in minutes</i>)
Hard disk Power Saving	'Disable', 'Enable' (<i>timing fixed at 20mins</i>)
Standby Switch Monitor Control	'Disable', 'Enable' (<i>see warning below</i>)

Caution

The monitor supplied with your computer is designed to work with these energy-saving features. If you want to use another monitor, make sure that it supports DPMS. If not, it may be permanently damaged.

Error Messages

If you get an error which is not listed or the problem persists, call your supplier or authorised maintainer.

Code	Cause	Code	Cause
0	Keyboard locked	301	Keyboard clock line failure
062	Boot failure (default values loaded)	301	Keyboard data line failure
101	Timer tick interrupt failure	301	Keyboard stuck key failure
102	Timer 2 test failure	303	Keyboard controller failure
106	Diskette controller failure	604	Diskette drive 0 failure
110	System board memory parity interrupt	604	Diskette drive 1 failure
114	Option ROM checksum failure	605	Diskette unlocked problem
151	Real time clock failure	662	Diskette drive configuration
161	Real time clock battery failure	762	Coprocessor configuration
162	CMOS RAM checksum failure	962	Parallel configuration
162	Invalid configuration information	1162	Serial configuration
163	Time of day not set -preboot	1762	Hard disk configuration
164	Memory size does not match CMOS	1780	Fixed disk 0 failure
165	Add/remove MC card	1781	Fixed disk 1 failure
166	Memory configuration change	1782	Fixed disk 2 failure
175	Bad EEPROM CRC #1	1783	Fixed disk 3 failure
176	System tampered	1800	No more IRQ available
177	Bad PAP checksum	1801	No more room for option ROM
178	EEPROM is not functional	1802	No more I/O space available
183	PAP update required	1803	No more memory <1Mb available
184	Bad POP checksum	1804	No more memory >1MB available
185	Corrupted Boot sequence	1805	Checksum error or 0 size option ROM
186	Hardware problem	1806	PCI-PCI bridge error
187	VPD S/N not set	1962	No bootable device
188	Bad EEPROM CRC #2	2400	Display adapter failed ; using alternate
189	Excessive password attempts	2462	Video configuration
201	Base memory error	5962	IDE CD-ROM configuration
229	External cache failure	8601	Pointer device failure
301	Keyboard failure	8603	Pointer device has been removed

Notes

Note down your BIOS settings for reference.

IMPORTANT INFORMATION

Suitable antistatic precautions

Cleaning and transporting your computer

Fall-back password

A1

ANTI-STATIC PRECAUTIONS

Static electricity can cause permanent damage to electronic components. You should be aware of this risk, and take precautions against the discharge of static electricity into the computer.

Static electricity can be generated by moving on a chair, brushing against desks or walls, or simply walking across an ordinary carpet. Items handed from one person to another, or being wrapped or unwrapped, can acquire a static charge. Air conditioning systems can also result in very high levels of static.

Clothing made of synthetic fibres is particularly likely to generate static electricity. This static electricity is often completely unnoticed by the wearer, but can be sufficient to cripple or destroy sensitive electronic components in computers.

The computer is at risk from static discharge while the top cover is off, as the electronic components of the motherboard are exposed. Memory modules, cache upgrades and OverDrive processors are other examples of electrostatic sensitive devices (ESSDs).

All work that involves removing the cover must be done in an area completely free of static electricity. We recommend using a Special Handling Area (SHA) as defined by EN 100015-1: 1992. This means that working surfaces, floor coverings and chairs must be connected to a common earth reference point, and you should wear an earthed wrist strap and anti-static clothing.

It is also a good idea to use an ionizer or humidifier to remove static from the air.

- ◆ When installing any upgrade, be sure you understand what the installation procedure involves before you start. This will enable you to plan your work, and so minimise the amount of time that sensitive components are exposed.
- ◆ Do not remove the system unit cover, nor the anti-static bag or wrapping of any upgrade, until you need to.

Anti-static precautions

- ◆ Handle static-sensitive items with extreme care. Hold expansion cards and add-on components only by their edges, avoiding their electrical contacts. Never touch the components or electrical contacts on the motherboard or on expansion cards. In general, do not handle static sensitive items unnecessarily.
- ◆ Keep all conductive material, foodstuffs and especially liquids, away from your work area and the open computer.

A2

CLEANING AND TRANSPORTING

Cleaning the computer

Do not use solvents or abrasives, they might damage the system unit surfaces.

Do not use aerosols or sprays near any part of the system, *in particular*, air vents or grills, ports, or removable-media drives, as microscopic droplets can remain in the air for some time and then be sucked in when you switch on and cause irreparable damage.

Warning

Turn off the system unit and unplug all power cords before cleaning or moving the computer.

The system unit

- ◆ Occasionally wipe the outside of the system unit with a soft, slightly damp, clean cloth.
- ◆ Occasionally check the air vents on the rear and sides of the system unit. Dust and fluff can block the vents and limit the airflow. A small, clean, soft brush may be useful.
- ◆ Occasionally clean the removable media drives using a special disk cleaning kit. These are available from many sources including your Apricot dealer.

The monitor

Occasionally wipe the monitor with a soft, slightly damp, clean cloth. It is best to use antistatic glass cleaner on the monitor screen to help prevent dust adhesion. **Do not** spray glass cleaner directly onto the screen, it could run down inside the case and damage the circuitry.

Cleaning and Transporting

The keyboard

When necessary, clean the keycaps with a slightly damp clean cloth and a minimum amount of a non-abrasive cleaning agent.

Regularly check the keyboard cable for wear and tear, particularly near table or shelf edges.

Take care not to spill any liquid or drop small objects, e.g. paper clips or staples, onto the keyboard. Follow these steps if this should happen to the keyboard and it stops working:

1. Switch off and unplug the keyboard.
2. If the liquid is sticky or viscous, unplug the keyboard and call your supplier or an authorised maintainer.
3. If the liquid is thin and clear, try unplugging the keyboard, turning it upside down to let the liquid drain out, and drying it for at least 24 hours at room temperature. If the keyboard does not work, call your supplier or an authorised maintainer.
4. If a solid object drops between the keys, turn the keyboard upside down and shake it gently. **Do not** probe between the keys as this may cause serious damage.

The mouse

The mouse tends to be used heavily and so is susceptible to damage, but a little care should minimise this.

Dust and fluff often accumulates in the ball tracking mechanism of the mouse and should be checked for regularly. To clean the mouse follow this procedure:

1. Unplug the mouse, turn it upside down and locate the plastic cover that holds the ball in place. Depending on the model, the plastic cover can be removed either by rotating it counter-clockwise or by sliding it forward slightly.
2. Remove the cover and set it aside. Then cupping one hand over the underside, turn the mouse back the right way up. The ball should drop into your hand.
3. Blow gently into the mouse to remove any dust that has collected there.

4. Inside the mouse there are three small rollers. Using a cotton swab moistened with a solvent cleaner, gently wipe off any oil or dust that has collected on the rollers, rotating them to reach all of their surfaces.
5. Use clear water, or water with a mild detergent, to clean the ball. Then dry it with a clean, soft cloth.
6. Put the ball back in its socket and replace the plastic cover. It should click into place.

The mouse cable should also be regularly checked for wear and tear, especially near table or shelf edges.

Transporting the computer

Use common sense when handling the computer. Hard disks in particular can be damaged if the computer is dropped or handled roughly.

Do not transport the computer with either a floppy disk or a CD-ROM left in the drives, as they may cause damage both to the media and to the drive.

Do not attempt to pick up the computer using either of the drives as a lifting point.

Do not try to move the computer while it is plugged into the AC power supply or with any other cables, (network, printer etc.), still attached and **especially** with the monitor on top.

If you need to transport the computer any great distance, use the original packing materials.

Warning

The computer is correctly set up to operate with the AC supply in the country in which it first sold. If you wish to use the computer in another country it may not be suitable. Consult your supplier or an authorised Apricot dealer.

A3 FALL-BACK PASSWORD

The fall-back password is a 12-digit number, unique to your computer, that is indelibly encoded in your computer's read-only memory. It is intended for use with your computer's anti-theft features (described in Chapter 1, of this manual).

If you ever forget your usual password, you can use the fall-back password instead. To keep the fall-back password secure, it is displayed **only once**, the first time that you use the anti-theft features. That is why you must make a note of the fall-back password and keep it safe.

You should record the password in the space provided below, then store this page (or the whole manual) in a safe place.

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