



apricot

LS/VS 550

Owner's Handbook



OWNER'S HANDBOOK

APRICOT LS/VS 550



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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 the system top cover.

Battery

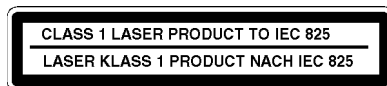
This product contains a lithium battery.

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 under side 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.

Safety and regulatory notices

Standards

Safety

This product complies with the European safety standards EN60950 and EN41003 when applicable, will include the national deviations for the country in which it is sold.

The computer's motherboard complies with the following International safety standards:
UL1950 (USA)

Electro-magnetic Compatibility (EMC)

This product complies with the following European EMC standards:

Emissions	EN55022 Class B
Immunity	EN50082 Level 1
Harmonics	EN61000-3-2

This product also complies with the following International EMC standards:

VCCI level 2 (Japan)

The applicable standards for the country of sale will be shown on the label fixed to the rear of the system.

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 relevant clauses of the following European Directives:

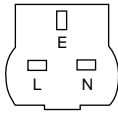
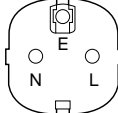
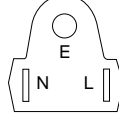
Low voltage Directive	73/23/EEC
EMC Directive	89/336/EEC
Telecommunications Directive	91/263/EEC
CE marking Directive	93/668/EEC

Caution

This system has been tested to comply with CE marking 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 must carry CE approvals.

Power connection information

Typical AC plugs

<div>250V</div> 	<div>250V</div> 	<div>125V</div> 	
BS1363A	SHUCO	NEMA 5-15P	
<hr/>			
United Kingdom	Austria	Belgium	Taiwan
	Denmark	Finland	Thailand
	France	Germany	USA
	Holland	Italy	Canada
	Norway	Sweden	

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.
- ◇ If the monitor AC lead is connected to the computer AC outlet, when you come to switch off, the computer power button will switch off the monitor at the same time.

Power Cable Connections - UK ONLY

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

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1 INTRODUCING YOUR COMPUTER

This chapter gives you a quick tour of your Apricot computer. It details the energy-efficient features of the computer and contains pictorial guides to help you identify the various parts of the machine. As soon as you've unpacked the components and familiarised yourself with them, you should progress to the next chapter, 'Getting Started'.

Warning

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

Unpacking

On unpacking the computer, you should find:

- ◆ Apricot PC system unit.
- ◆ System unit AC power cord, and monitor power cord, appropriate for the country of sale.
- ◆ System documentation (this *Owner's Handbook*, etc.)
- ◆ Microsoft Windows 95 or (if requested) Microsoft MS-DOS and Windows for Workgroups documentation.

More elaborate systems may include software or hardware options with accompanying installation diskettes and additional documentation. Some of these options may have been factory configured, or installed by your supplier.

Keep the cartons, boxes and packaging materials; you will need them again if you have to transport the computer elsewhere.

Make a note of the manufacturer's data recorded on the various components (product codes, serial numbers, etc.). A service engineer may need this information if the computer develops a fault.

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

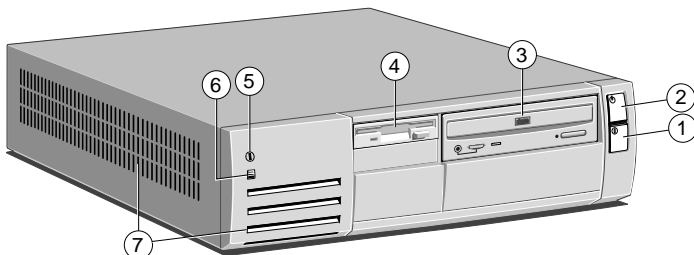
Do not attempt to use the computer's energy-saving features with a monitor that does not support DPMS; the monitor may be permanently damaged.

If the computer is left unattended for a certain amount of time (defined in the BIOS settings) the computer will enter a low power mode. The screen may 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.

Further details can be found in the Power Management section of Appendix B, "*System BIOS and Setup*".

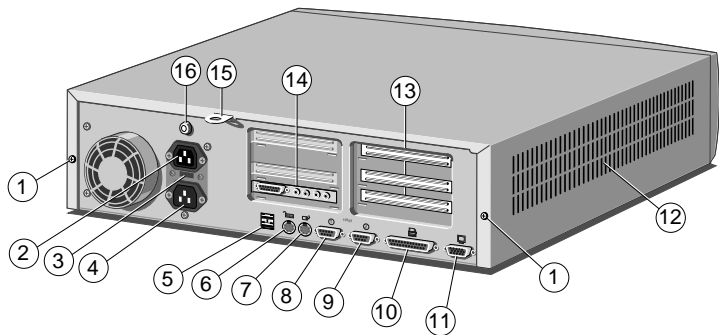
Pictorial Guides

Front View



- 1 Power button: press to turn on or off.
- 2 Standby button: pressing this button switches the system between normal working mode and its Standby mode. In standby mode the system uses little power, but can be quickly returned to normal mode.
- 3 Optional CD-ROM, PD/CD-ROM, or tape drive.
- 4 3.5" Floppy diskette drive.
- 5 Power LED indicator: lights when the system unit is powered.
- 6 Hard disk drive activity indicator: lights when the hard disk drive is in use.
- 7 Air vents.

Rear View



- 1 Casing screws: unfasten these to remove the top cover.
- 2 AC power outlet: where the monitor power cord plugs in.
- 3 Voltage selection switch: the system unit can be set to operate with a 100-120 V or 220-240 V AC power supply.
- 4 AC power inlet: where the system unit power cord plugs in.
- 5 Optional dual Universal Serial Ports (USB) for connection to USB compatible interfaces.
- 6 Keyboard port: connect the keyboard to this port.
- 7 Mouse port: connect the mouse to this port.
- 8 Serial port 1: typically used for connecting an external modem or a serial printer signal cable.
- 9 Serial port 2: as serial port 1.
- 10 Parallel port: typically used for a printer signal cable.
- 11 Monitor port: connect the monitor signal cable to this port.
- 12 Air vents: do not block these vents or the system will overheat.
- 13 Blanking plates: for the expansion card slots.
- 14 Optional audio daughter board.
- 15 Security loop: you can feed a security chain through this loop and secure it to prevent theft of the system unit.
- 16 System unit case lock.

2

GETTING STARTED

This chapter provides important information to help you site, connect, power and configure the computer.

Warning

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

General advice

This computer is designed to be used in a normal home or office environment. Here are a few hints for choosing a suitable site:

- ◆ Place the system unit flat on a sturdy, level surface.
- ◆ Site the computer away from moisture, direct sunlight, and extremes of heat and cold. Avoid situations in which the surrounding temperature or humidity may change rapidly. (See Appendix C, “*Technical Information*”, for recommended temperature and humidity ranges.)
- ◆ When positioning the system unit, monitor and keyboard, take into account any local or national regulations relating to ergonomic requirements. For example, you should ensure that little or no ambient light is reflected off the monitor screen as glare, and that the keyboard is placed in a comfortable position for typing.
- ◆ Give the computer plenty of room so that air can circulate on all sides. Air is drawn into the system unit through vents on the front and on the left-hand side, and expelled through the vent on the back. Ensure that these vents are never obstructed.

Do not allow any cables, particularly power cords, to trail across the floor where they can be snagged by people walking past.

Warning

The computer uses the system unit AC power cord as its “disconnect device”. Ensure that the system unit is positioned close to the AC power outlet, and that the plug is easily accessible.

To prevent fire and electric shock, do not expose any part of the system unit to rain or moisture.

Connecting the components

See Chapter 1, “*Introducing your computer*”, if you need help identifying the various ports on the system unit.

Checking the AC power supply

When the computer is delivered, it is ready for the commercial AC power supply generally available in the country in which it is first sold. It has been set for the correct voltage range, and is supplied with an AC power cord and plug which comply with the relevant safety standards.

Before using the computer in a country other than that in which it was originally sold, you must check the voltage and frequency of that country’s AC power supply, and the type of power cord required there. Check the power rating labels on the rear of the computer’s system unit and its monitor to ensure that they are compatible with the AC power supply.

If necessary, the AC voltage setting of the system unit can be adjusted by the voltage selection switch on the rear of the system unit. Refer to the section entitled “Using the computer in another country” in Chapter 3, “*Using your computer*”, for instructions on how to do this. It is likely that the monitor’s voltage setting will also need adjusting; consult the *User’s Guide* that accompanies the monitor, or ask your supplier for help.

Installing add-on options

If the computer arrived with uninstalled add-on options, (such as expansion cards or memory modules) refer to the relevant chapters

in this handbook for step-by-step installation instructions. Expansion cards may also have their own documentation that supplements or overrides the instructions in this manual.

Note that some options for which you have installation guides may have already been installed for you at the factory or by your supplier.

Connecting the components

Having assured yourself that the voltage settings, and the AC power cords of the computer, the monitor and any other peripherals, are correct, use the procedure below to connect these components together. It is important that you take each step in the order indicated.

1. If your AC power outlets have switches, set them to their Off positions.
2. Ensure that the system unit, the monitor, and any peripherals are turned off.
3. Connect the monitor signal cable between the monitor and the monitor port on the rear of the system unit. (If the monitor signal cable is connected after the computer is turned on, the display may appear in monochrome or not at all.)
4. Where appropriate, connect other signal cables between your peripherals and their respective ports on the system unit. Make sure the signal cables are connected securely.
5. Plug the keyboard cable into the keyboard port on the system unit. Be careful not to plug it into the mouse port by mistake.
6. Plug the mouse into the mouse port on the system unit. Never connect either the keyboard or the mouse while the system unit is turned on.
7. Where appropriate, connect the computer to the network.
8. Connect the monitor power cord between the monitor and the AC power outlet on the rear of the system unit.

9. Connect the system unit power cord between the AC power inlet on the rear of the system unit and a nearby, grounded AC power outlet.
10. Where appropriate, connect power cords between your peripherals and nearby, grounded AC power outlets.
11. If your AC power outlets have switches, set them to their On positions.

Turning on and booting the computer

Turning the power on

To turn on the computer, simply press the POWER button. The power indicator on the front of the machine lights to green to show that the system unit is powered. Remember that the monitor has its own power button or switch; see the monitor's *User's Guide* for details.

Always make sure that the system unit is turned on before turning on any attached peripherals.

If the computer does not start when the POWER button is pressed, check that the system unit and monitor power cords are securely connected and that the AC power supply is switched on.

Power-on self-test

Whenever the computer is turned on, a power-on self-test (POST) routine test various hardware components 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.

The boot sequence

Provided that POST succeeds without discovering any serious errors or configuration discrepancies, the computer attempts to find an operating system; that is, it attempts to **boot**.

By default, the computer will look first for a system diskette, then for a bootable hard disk, but this sequence can be changed with the BIOS Setup utility.

System diskette

A system diskette is a diskette bearing at least the rudiments of an operating system. If the computer finds such a diskette in the diskette drive, it boots from it. If it finds a non-system diskette, the computer invites you to replace it. If necessary, your operating system manuals should tell you how to create a system diskette.

Hard disk

Apricot computers fitted with a hard disk normally arrive with either Microsoft Windows 95 or the MS-DOS/Windows operating system already in place or **pre-installed**, so that it's there ready for you when you turn on the computer for the first time.

Note

A hard disk may contain more than one operating system, in different partitions, but only one partition can be active at any one time. The computer loads its operating system from the currently active partition.

Starting the computer for the first time

The first time you turn on your computer a message appears explaining the legal terms and conditions that govern the use of the software pre-installed on the computer's hard disk. Once you have read this message, you will have to press the specified key to continue. By doing so you are acknowledging that you have read, understood and accepted the terms and conditions.

Why your computer may seem to stop working

Your computer has a built-in energy-saving feature. If you leave it for a while without doing anything, it goes into a special low-power **standby** mode. The monitor display may go blank and the processor slows down. The operating system and your programs continue to run, although slowly (and of course you can't see them

because the monitor is blank). The computer is still working, and you haven't lost any of your files.

You can wake the computer again by pressing any keyboard key. See Appendix B, "System BIOS and Setup" for more information.

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 the VESA standard for Display Power Management Signalling; if it doesn't, it may be permanently damaged.

Turning the power off

Before turning off the computer, run through the following checklist:

- ◆ Quit or exit from the applications you are running; be sure to save any files you have altered.
- ◆ If you are logged-in to a network, logout before turning off the computer. This gives the network operating system a chance to free up the network resources you've been using.
- ◆ Close down or quit any software that employs virtual memory or disk-caching (Windows 95 and Windows for Workgroups do this automatically).
- ◆ Always turn off any attached peripherals first. However, there's no need to turn off the monitor if it's being powered from the system unit.
- ◆ Wait until all the activity indicators on the front bezel are unlit or the operating system reports that is OK to turn the system off.

To turn off the computer, simply press the POWER button again. The power indicator on the front bezel goes out. If the monitor is powered from the system unit, it will be turned off at the same time.

Wait at least 5 seconds before you turn the computer on again - to give it time to initialise properly.

3

USING YOUR COMPUTER

This chapter provides useful information on the correct operation of the drives which may be fitted to your computer. It also provides useful advice on caring for, and transporting your computer.

Warning

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

Using the 3.5" diskette drive

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

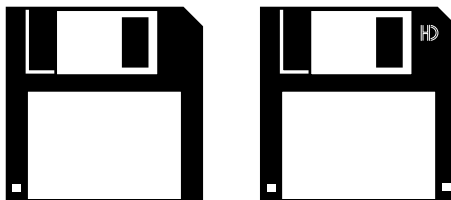
The 3.5" diskette drive fitted to your computer can read and write both 720 Kbytes disks (if marked "DD" or "double density") and 1.44 Mbytes disks (if marked "HD" or "high density"). The HD disks can hold twice the capacity of DD disks.

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.

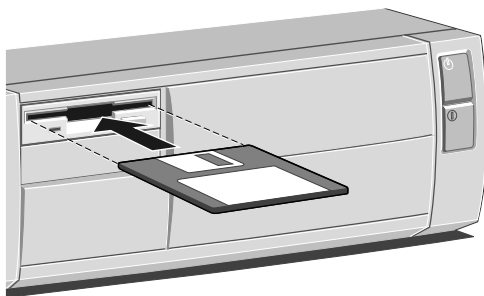
The immediate physical differences between the HD and DD floppy disks are shown in the diagram below:



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

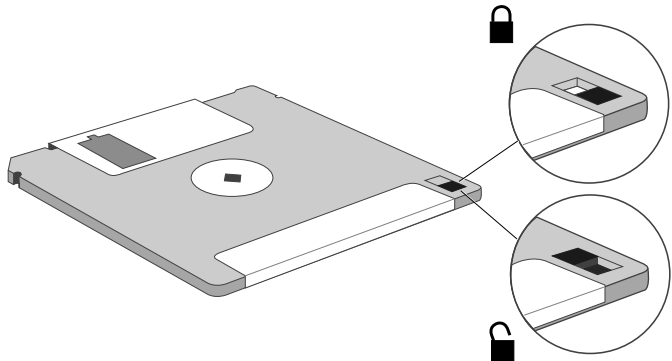
Before attempting to remove a diskette, make sure that the drive is not currently in use (the diskette activity indicator, opposite the drive's eject button must be unlit). Press the eject button on the drive. The drive mechanism disengages and the diskette is ejected half-way out of the drive.

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 disable the diskette drive, or make it read-only. See Appendix B “*System BIOS and Setup*”.

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.

The software required to control the CD-ROM drive depends on the operating environment; see the Help supplied with your computer or ask your supplier for details.

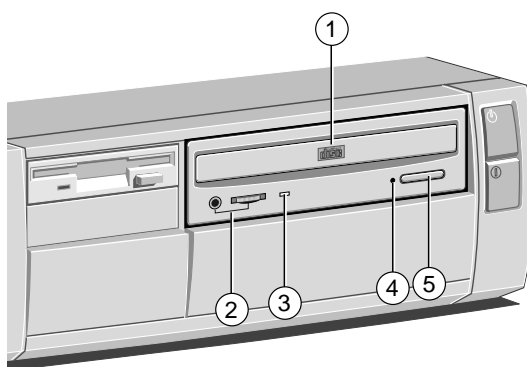
It is important that the computer is not moved while a CD is in the drive, especially if the CD is being played at the time.

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

The CD-ROM drive has the following features:

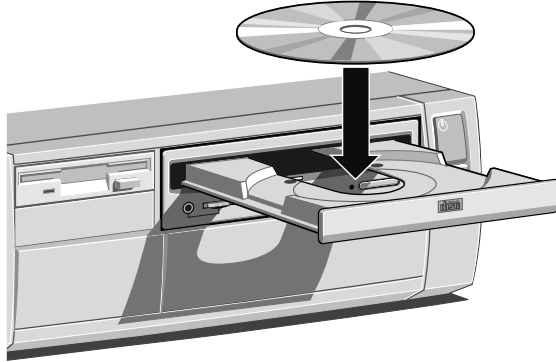


- 1 Disc drawer
- 2 Headphone jack and headphone volume level
- 3 Busy indicator
- 4 Emergency eject hole
- 5 Eject button

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 face 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

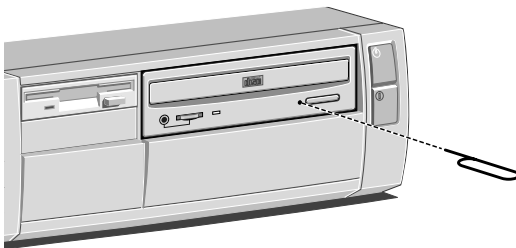
Before attempting to remove a CD, ensure that the drive is not currently active (the drive's activity indicator should be green).

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

Note

Some software programs can temporarily override the eject button. They do this to prevent the user from inadvertently interrupting the CD operation.

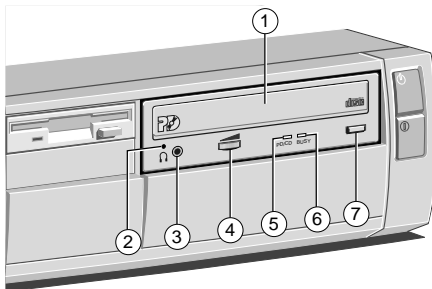
To eject the drawer manually (for example, during a power failure) you must ensure that the computer is turned off. Then insert a thin metal rod (such as a unwound paper clip) into the emergency eject hole and push, see overleaf:



Keep CDs well away from dust and moisture, and avoid touching the surface of the CD. Also, avoid extremes of temperature and exposure to direct sunlight.

Using the 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.



- 1 Disc/ cartridge drawer
- 2 Emergency eject hole
- 3 Stereo headphone socket
- 4 Volume control for headphones
- 5 CD/PD Indicator LED:
 - Green CD loaded
 - Amber PD cartridge loaded
- 6 Drive busy indicator LED:
 - Amber When CD-ROM disk is played.
 - Amber Read/write to PD cartridge
- 7 Eject button

The drive control software provides two icons, each with its own drive letter corresponding to the PD data cartridges, and the CD-ROM.

The drive uses two LED indicators: one determines which type of media is loaded in the drive, the other indicates the busy status of the drive.

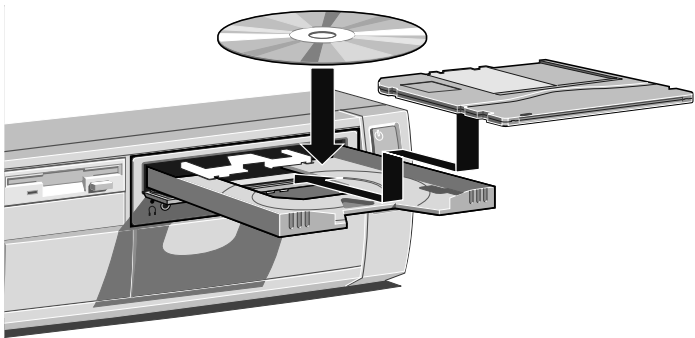
The drive can use any PD cartridges bearing the  logo. If the cartridge is not formatted you will be prompted to format it.

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 (green for CD and orange for PD cartridge). The drive busy indicator will flash for a short while, wait

until it stops flashing before attempting to read or write information from it.

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.

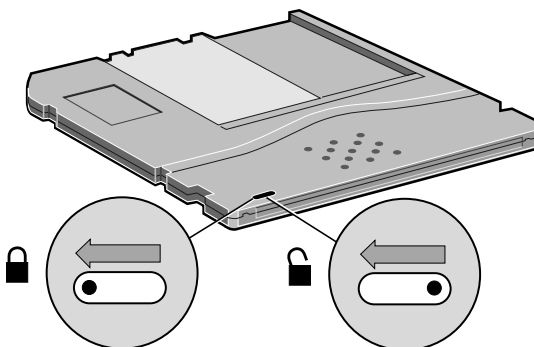
Caution

Do not turn the power off, or eject a PD cartridge whilst the drive's busy indicator is flashing. Your data may not be saved properly, or your data may be corrupted.

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) on the cartridge to the locked position (marked with a closed padlock symbol) as shown below.



Cleaning the PD/CD drive

It is recommended that you regularly use a specialist CD cleaning disk to clean the lens in the drive as it may become dusty and fail to operate.

Warning

Do not use any other instrument to clean the optical lens as you may damage the drive.

Using an FTD Travan tape drive

The FTD Travan tape drive uses the on-board diskette/floppy disk interface and so does not require an additional drive controller card like most other tape drives.

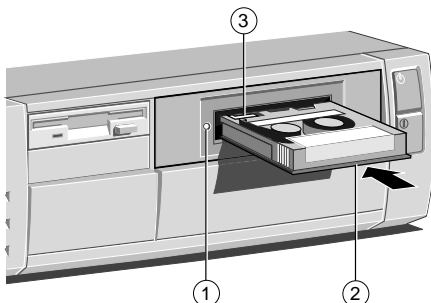
The drive is designed for TR-1 or equivalent minicartridges (750 ft, 400 Mbytes). This nominal capacity can typically be doubled to 800 Mbytes by software data compression. The software required to control the tape drive depends on your operating environment; ask your supplier for details.

Note

The drive can also accept QIC-80 Wide cartridges (400 ft, 208 Mbytes) and long-length QIC-80 cartridges (307.5 ft, 124 Mbytes).

Inserting a cartridge

1. Remove the cartridge from its plastic holder.
2. Hold the cartridge so that the metal plate faces downwards, as shown below. Slide the cartridge into the drive slot until you feel a slight resistance.



- 1 Activity Indicator
- 2 Metal plate
- 3 Write-protect tab

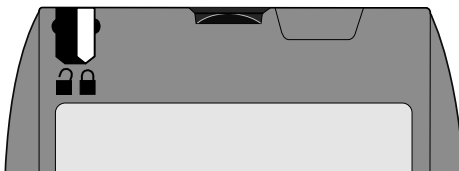
3. Carefully push the cartridge in a bit further until it engages with the drive mechanism. Once the cartridge is correctly loaded, it protrudes about 12 mm from the drive.

Removing a cartridge

1. Check that the cartridge is not being accessed by the computer (the drive's activity indicator must be unlit).
2. Pull the cartridge carefully out of the drive slot, holding it between thumb and forefinger.
3. Return the cartridge to its plastic holder. This protects the cartridge and prevents dust from collecting on the surface of the tape.

Write-protecting a cartridge

A cartridge can be write-protected by sliding the red switch on the cartridge to the locked position (marked with a closed padlock symbol) as shown below.



Keep tape cartridges well away from magnetic objects, and equipment that generates magnetic fields (for example, your computer's monitor). Avoid extremes of temperature and exposure to direct sunlight; otherwise, the data recorded on the tape may become corrupted.

Cleaning the drive

You should clean the read/write head and the capstan of the drive frequently to prevent the accumulation of dust and metallic particles.

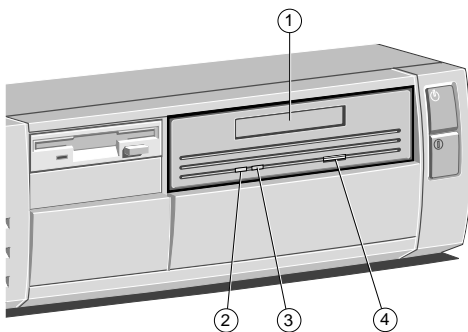
If you notice read or write errors, or many bad blocks when using the drive, be sure to clean the head and capstan thoroughly before concluding that the drive or your tapes are defective.

Although it is possible to use special kits to clean the drive, we recommend the use of 90% isopropyl alcohol and several non-abrasive, lint free swabs, as follows:

1. Turn off the system unit and unplug all power cords.
2. The read/write head and the capstan are accessible through the flip-up drive door.
3. Gently rub an alcohol-dampened swab against the surface of the read/write head using a side-to-side motion. If the swab becomes too discoloured, use additional swabs until there is no further discoloration.
4. Rub another, unused, alcohol-dampened swab against the surface of the capstan using an up-and-down motion. Gently rotate the capstan and continue rubbing until the entire surface is clean.
5. Wait for at least three minutes before using the tape drive. This allows any residual alcohol to evaporate.

Using a SCSI DDS-2 tape drive

The computer may be configured with a SCSI DDS-2 (Digital Data Storage v2.0) tape drive. The software needed to control the drive depends on your operating environment; ask your supplier for details.



- 1 Cassette insertion slot
- 2 Cassette-in-place indicator (green)
- 3 Drive busy indicator (amber)
- 4 EJECT button.

The DDS-2 drive has a built-in compression algorithm which can typically double, and in some cases quadruple, tape capacity. Data compression and decompression is transparent to the host software.

The DDS-2 drive uses 120-metre cassettes. The drive automatically detects whether cassettes are DDS-2 format, or the older DDS format. It can read and write both DDS uncompressed and DDS-DC compressed data.

The drive writes compressed data by default, unless it finds uncompressed data already on the cassette. The drive can also write uncompressed data under software control. When reading a cassette, the DDS-2 drive automatically distinguishes compressed and uncompressed data and either decompresses it or passes it through unaltered as appropriate.

Caution

Use only cassettes bearing the DDS-2 or DDS symbols. You cannot play audio DAT cassettes with these drives, even on multimedia systems. Data stored on DDS-2 cassettes cannot be read by some first-generation DDS drives.

Interpreting the LED indicators

There are two LED (light-emitting diode) indicators on the drive's front panel. The Cassette-in-Place (green) and Drive Busy (amber) LEDs show the status of the drive:

Green	Amber	Drive status
On	Off	Cassette inserted.
On	On	Cassette inserted: tape being read or written.
Flashing slowly	On/Off	Media warning.
Flashing rapidly	On	Drive could not write to tape correctly.
On/Off	Flashing rapidly	Hardware error or high humidity.

Media warning

A media warning, when the Cassette-in-Place (green) LED flashes slowly, indicates that the tape may be becoming unreliable, although at this point no data has been lost. First, clean the tape head cylinder with the special cleaning cassette, then try the data cassette again. If the warning persists, copy the data onto a new cassette and discard the old one.

A media warning can also indicate that a pre-recorded audio DAT cassette has been inserted by mistake.

Drive could not write to tape

If the Cassette-in-Place (green) LED flashes rapidly, this means that the drive could not write to the tape correctly, and indicates that the tape has become unreliable. Remove the cassette and use another.

Hardware error or high humidity

If the Drive Busy (amber) LED flashes rapidly, this indicates either a hardware error or dew (high humidity). If this happens soon after powering-up the computer, the drive's diagnostic test may have failed, in which case the drive will not operate. Request help from your supplier or an authorized maintainer.

If the drive detects high humidity, the tape is automatically ejected. As soon as the drive detects that the humidity is at an acceptable level, it will return to normal operation.

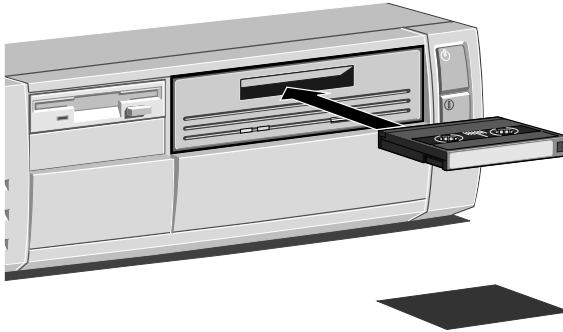
Automatic drive operation

To prolong the life of the tape and the drive mechanism, the drive “relaxes” during periods of inactivity (no read or write operations):

- ◆ After 30 seconds, the capstan and pinch roller are released and tape tension is removed.
- ◆ After 90 seconds, the tape is pulled away from the head cylinder, and the cylinder stops rotating.

Inserting a cassette

Insert the cassette into the slot with the triangular arrowhead on the cassette pointing towards the drive. As the tape is inserted, the drive takes it and automatically loads it into the drive mechanism. A load sequence checks ambient humidity, the tape format and data integrity. Unless the tape is blank the tape log, which contains a history of usage of the tape, is read into the drive's memory.



The drive will automatically format a blank tape when data is first written to it. Remember to allow time for the formatting process when you use a new tape.

Removing a cassette

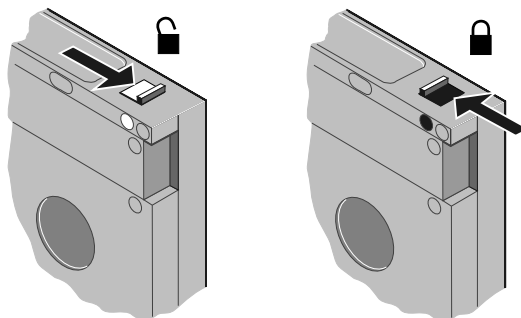
Before attempting to remove a cassette, ensure that the drive is not currently in use (the amber Drive Busy indicator must be unlit).

Press the EJECT button on the front of the drive (depending on your operating system, the EJECT button may be disabled while the drive is in use). If the tape is write-enabled, a copy of the tape log, held in the drive's memory, is written back to tape. The drive rewinds to the beginning of the tape, unthreads it, and ejects the cassette. Several seconds may pass between the button being pressed and the cassette being ejected, so be careful not to turn off the computer before the operation is completed.

Write-protecting a cassette

A cassette can be write-protected by sliding the white tab on the cassette so that the recess is revealed. In this position, data can be read from the tape but not written to it.

The tape log, which includes a record of data integrity failures, cannot be updated while the cassette is write-protected. It follows that the tape log becomes inaccurate if a cassette is used while write-protected, and the media warning LED status cannot be relied upon to determine if the cassette needs to be copied and replaced.



Keep your cassettes well away from magnetic objects, and equipment that generates magnetic fields. Avoid extremes of temperature and exposure to direct sunlight; otherwise, the data recorded on the tape may become corrupted.

Cleaning the drive

The read/write heads in the DDS-2 tape drive are protected during normal operation by a built-in cleaning roller. In addition, a special cleaning cassette is available from your supplier. This cassette should be used:

- ◆ After the first four hours of tape movement of a new cassette.
- ◆ Every 25 operating hours.
- ◆ When a media warning status is indicated.

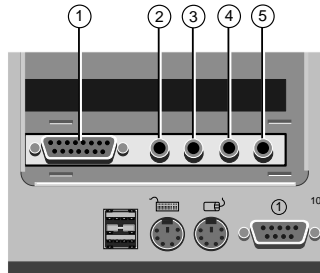
When you insert the cleaning cassette, the drive recognises it as a cleaning cassette, runs it for about 20 seconds, then ejects it automatically. Each time the cleaning cassette is used the tape advances over an unused portion of the tape. If the drive ejects the cleaning cassette immediately after you insert it, this means that the entire tape has been used and a new cleaning cassette is required. You cannot rewind a cleaning cassette.

Caution

Do not attempt to use an ordinary audio DAT cleaning cassette. The drive will be unable to recognise it as a cleaning cassette.

The sound connections

There is an audio board (optional) mounted at the rear of the expansion slot area of the system unit.



- 1 Joystick/ MIDI port
- 2 Microphone socket
- 3 Line IN socket
- 4 Line OUT socket
- 5 Speakers jack socket

The Joystick/MIDI port can be used to connect any analog joystick with a 15-pin D-sub connector, or Musical Interface Digital Interface (MIDI) device such as synthesizers, drumcomputers etc.

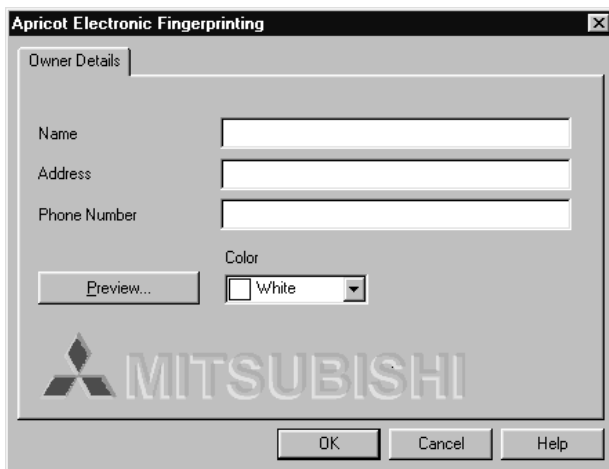
The mono microphone input is provided with phantom power for electret condenser microphones.

The anti-theft features of your computer

Included with your computer is the Electronic Fingerprinting feature or the Sensonic movement-activated siren feature which incorporates Electronic Fingerprinting.

Electronic Fingerprinting

Electronic Fingerprinting allows user supplied information to be stored on part of the computer's permanent memory. This is then displayed every time the computer is switched on. It is intended that this information includes your name, address and phone number so that if your computer is stolen it can be traced back to you. Effectively Electronic Fingerprinting allows you to "brand" your computer with your personal details.



After you have entered your details you will be prompted to set a password. This prevents anybody else from gaining access to your branding 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.

Note

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

Until you have entered your branding details the Electronic Fingerprinting application will automatically run each time Window 95 or Windows for Workgroups starts. Thereafter, Electronic Fingerprinting can be run by selecting its icon which is displayed:

- At the top of the Start bar menu, in Windows 95.
- In the Apricot group, in Windows for Workgroups.

Important:

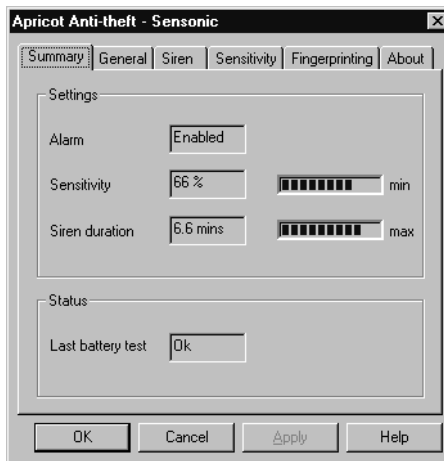
1. *The first time you use the Electronic Fingerprinting application a unique “fall-back” password will be displayed. This is a 12-digit number and can be used, in an emergency, if you should forget your password. You must therefore make a note of this number, this is the only time you will ever see it. A page at the back of the manual is provided for you to note it down. Tear it off 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 prevents access to your computer.*

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

Sensonic

The Electronic Fingerprinting feature is **included** with the Sensonic software and will not appear as a separately accessible application.

The first time the Sensonic application runs you will be required to enter your personal details on the Electronic Fingerprinting screen (as shown previously) you will then be able to access the Sensonic software to enable the siren. The Electronic Fingerprinting feature will then become part of the Sensonic software, accessible via the tab in the software, shown below:



The Sensonic anti-theft device is enabled when you turn off the computer, or use the purple button to invoke standby mode. Then if anyone tries to steal or break into your computer, the movement of the system unit will set off a very loud siren. To turn off the siren if it is sounding, start the computer and during the power on sequence you will be prompted to enter your password.

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

Customising your display settings

Your copy of Windows 95 or Windows for Workgroups (if requested) is set up for a standard VGA monitor, so that Windows is sure to display correctly whichever monitor you connect. However, most monitors today, and all Apricot monitors can display in higher resolutions than standard VGA.

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

In Windows 95

Changing the monitor setting is done via the **Change Display Type** option on Windows 95's **Display Properties** dialog box. It contains a list of major monitor manufacturers and models, including all current Apricot monitors. See Windows 95 Help for more details on changing hardware settings.

Tip:

A quick route to changing the monitor type in Windows 95 is to right-click the mouse while pointing at the background area of the Windows Desktop, then select Properties from the pop-up menu. This displays the Display Properties dialog box. You will find the Change Display Type dialog box under the Settings tab.

In Windows for Workgroups

Changing the monitor settings is done via Windows Setup. In the Main group, select the **Windows Setup** item. The Windows Setup window will appear. Select **Change System Settings** from the **Options** menu. A list of all major monitor manufacturers and models, including all current Apricot monitors appears.

You maybe prompted to insert Windows for Workgroups disk(s) in the floppy drive. You will need to use the disk imaging utility provided to make a set of Windows for Workgroups disks.

After you have inserted the disk(s) requested you will need to restart Windows in order for the new settings to take effect.

For further detailed information please refer to the Windows for Workgroups documentation and online help.

Software Back up

Apricot computers normally arrive with the operating system pre-installed on the hard disk, in the **C:\WINDOWS** directory. The hard disk also contains a complete set of video display drivers, although initially the computer is configured to use the standard VGA Windows driver. Additional software may be pre-installed by your supplier.

We recommend 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 safe guard the pre-installed software against loss if the hard disk fails or if you accidentally overwrite or delete files.

- ◆ A disk imaging utility is provided with Windows 95 and Windows for Workgroups. This allows you to create installation diskettes for the operating system, and some other software, from disk images pre-installed on the hard disk. See the utility's on-line help for more information.

- ◆ To back up other pre-installed software (and your own files) use the Create System Disks utility in the System Tools folder (if you have Windows 95) or Backup for Windows (if you have Windows for Workgroups).

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.

Apricot's Windows Help files are usually pre-installed in the Apricot folder (Windows 95) or program group (Windows for Workgroups).

The README.1ST files or other ASCII text files (identified by their .TXT extensions) can be opened by most text editors and wordprocessing packages. Alternatively they can be displayed, one screenful at a time, using the following commands at the MS-DOS prompt:

TYPE README.1ST | MORE (for Windows for Workgroups)

MORE README.1ST (for Windows 95)

Caring for your computer

This section details information on how to care for your computer, and provides useful hints on safe transporting. You will find that your computer requires little physical maintenance other than occasional cleaning. But you must take care when transporting it to avoid damage to its delicate components, particularly the hard disk.

Warning

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

The system unit

Do not use sprays, solvents or abrasives that might damage the system surface. **Do not** use cleaning fluids or sprays near air vents, ports, or the media drives.

Occasionally do:

- ◆ Wipe the system unit with a soft, slightly damp, lint-free cloth.
- ◆ Wipe the air vents on the rear and sides of the system unit as dust and fluff can block the vents limiting the airflow.
- ◆ Clean the diskette drive using a proprietary head cleaner.

The monitor

Occasionally wipe the monitor with a soft, slightly damp, lint-free cloth. It is best to use anti-static glass cleaner on the monitor screen, but do not spray glass cleaner directly onto the screen; it could run down inside the case and damage the circuitry.

The keyboard

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

Take care not to spill any liquid onto the keyboard. Follow these steps if you spill something on the keyboard and it stops working:

- ◆ If the liquid is viscous, unplug the keyboard and call your supplier or an authorised maintainer.
- ◆ If the liquid is thin and clear, try unplugging the keyboard and turning it upside down to let the liquid drain out, and drying it for at least 24 hours at room temperature. If the keyboard still does not work, call your supplier or an authorised maintainer.

If a solid object drops between the keys, turn the keyboard upside down and shake it; do not probe between the keys as this may cause further damage.

The mouse

Dust and dirt may accumulate in the ball tracking mechanism of the mouse. To clean the mouse:

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.
3. Cupping one hand over the underside, turn the mouse back the right way up. The ball will drop into your hand.
4. Blow gently into the mouse to remove any dust that has collected there.
5. Inside the mouse there are three plastic 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 surfaces.
6. Use clear water, or water with a mild detergent, to clean the ball. Then dry it with a clean, lint-free cloth.
7. Put the ball back in its socket and replace the plastic cover. It should click into place.

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. As a precaution, back up (copy) the contents of the hard disks to diskettes before moving the computer.

Don't try to move the computer while it is plugged into the AC power supply or with any other cables still attached.

When lifting and carrying the computer, grip the metal underside of the system unit. Never attempt to lift the system unit with a monitor on top.

If you need to transport the computer any great distance, use the original packing materials. If you plan on using your computer in a different country, it is important that you read the section below.

Using the computer in another country

The computer arrives ready to work with the commercial AC power supply available in the country in which it is first sold.

If you plan to use the computer in another country, you should first check the following facts about your destination:

- ◆ The voltage and frequency of the commercial AC power supply.
- ◆ The type of plug required for the AC power outlets.

AC power supply

Check the power rating labels on the rear of the computer's system unit and its monitor to ensure that they are compatible with the AC power supply.

Warning

It is imperative that the computer is set to the correct voltage range before use. If not, the machine may be irreparably damaged.

The computer can function within two alternative AC power supply ranges, according to the position of the voltage selection switch on the rear of the system unit:

Switch Setting	AC power supply (voltage and frequency)
115	100 - 127 volt AC, 50 - 60 Hz
230	200 - 240 volt AC, 50 - 60 Hz

The voltage setting of the monitor must always be the same as the voltage setting of the system unit. See the *User's Guide* that

accompanies the monitor or consult your supplier to find out how to change the voltage setting.

Make sure that the system unit and the monitor are returned to their original voltage settings when you return home.

AC power cord

The AC power cord and plug supplied with the computer comply with the safety standards applicable in the country in which it is first sold. If you plan to use the computer in another country, you must get a power cord that complies with the safety standards of the destination country.

4

EXPANSION CARDS

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.

Before you start installing the card you should be thoroughly familiar with the instructions. The only tool required is a small cross-head screwdriver.

Appendix A, “*Inside the System Unit*” provides: a guide to recommended anti-static precautions, instructions on how to remove the system unit cover, and information on the motherboard jumpers.

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. You can extend the capabilities of your computer, for example:

- ◆ A graphics/movie card can provide more specialised video functions.
- ◆ A modem card can provide a connection to the Internet or a bulletin board via telephone line.
- ◆ A television card can enable you to watch TV on your monitor and capture individual frames.

This computer system has room for:

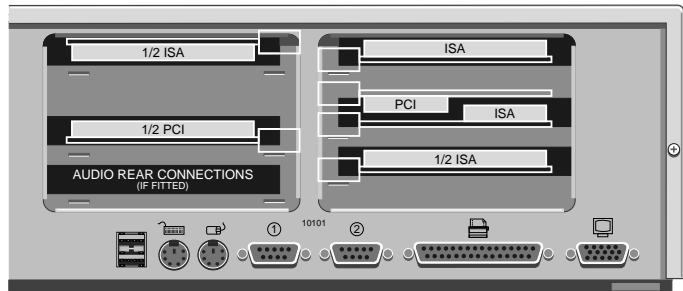
One: full length Industry Standard Architecture (ISA) slot.

Two: half length ISA slots.

One: half length Peripheral Component Interface (PCI) slot.

One: full length ISA or PCI slot

These can be arranged into the internal riser card generally as shown in this rear view (the blanking plates have been removed for clarity).



Configuring the card

Part of the installation procedure for many expansion cards involves setting up or configuring the card so it works correctly in the system.

The Plug and Play (PnP) feature of PCI/ISA cards allows Windows 95 (and other PnP-aware 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.

If manual configuration is required 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.

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.

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 (if fitted)	Yes
IRQ6	Diskette controller	No
IRQ7	Parallel port	Optionally
IRQ8	Real time clock	No

IRQ	Default assignment	Available?
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.

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 at least DMA7.

The following table lists the DMA channels used by the computer and shows which are available for use by expansion cards.

DMA	Default assignment	Available?
DMA0		Yes
DMA1	8-bit Audio	Optionally
DMA2	Diskette/floppy disk controller	No

DMA	Default assignment	Available?
DMA3	Enhanced Capabilities Port (default)	Optionally
DMA4	System	No
DMA5	16-bit Audio	Optionally
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.

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
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

I/O ports	Default assignment
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 between C8000h and EFFFFh in upper memory. With most modern expansion cards this is fully automatic.

Note

Memory addresses are always written in base 16 (hexadecimal notation). Hexadecimal uses sixteen digits (0-9 and A-F, where A=10, B=11 and so on up to F=15). Hexadecimal numbers are denoted either by the suffix “h” or by the prefix “0x”. The final digit of a five-digit memory address is often omitted, so C8000h may be written as C800h. Since amounts of memory are usually stated as kilobytes rather than in hexadecimal notation, the following conversion table may be helpful:

<i>4 Kbytes = 1000h</i>	<i>8 Kbytes = 2000h</i>	<i>16 Kbytes = 4000h</i>
<i>32 Kbytes = 8000h</i>	<i>64 Kbytes = 10000h</i>	<i>128 Kbytes = 20000h</i>

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.
2. Take suitable anti-static precautions and remove the rear system unit cover, detailed instructions are provided in Appendix A, “*Inside the System Unit*”.

Note

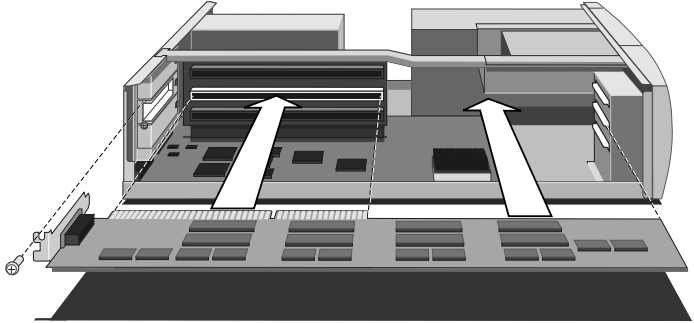
If you are unfamiliar with the recommended anti-static precautions and/or the process of removing the system unit cover, refer to Appendix A, “Inside the System Unit”.

3. 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 side of the machine on one side of the riser.
4. First decide in which of the available slots you wish to install the card. In general it is easiest to start with the lowest slot and work upwards.
5. Remove the blanking plate of the chosen slot by removing its securing screw, then sliding the blanking plate out of its slot. You will need to remove the external security clamp in order to gain access to the blanking plates on the other side of the riser. Keep all the screws, etc., they will be needed later to secure the card.
6. 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 refer to the notes given below.

7. Position the expansion card alongside the slot in which you wish to install it. Align the rear of the card with the slot in the rear of the system unit, and, if the card is full length, align the front of the card with the card guide, into the bottom slot.
8. 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.



9. Secure the card by replacing all the screws/clamps that you removed in Step 5.
10. 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. Please refer to Appendix A, 'Inside the computer' for further details.

Warning

The AMC connector forms a subset of the VFC and has additional 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.

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

5

SYSTEM UPGRADES

This chapter contains instructions on installing **upgrades** or **add-ons** in the computer (with the exception of expansion cards which were dealt with in the previous chapter).

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.

Before you start installing any upgrade you should be thoroughly familiar with all the relevant instructions.

Appendix A “*Inside the System Unit*”, provides instructions on removing the system unit top cover, and information on motherboard jumpers.

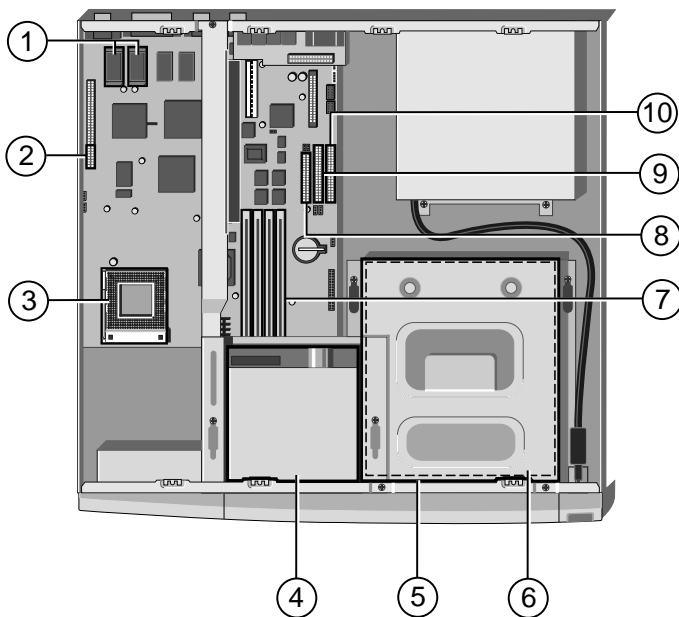
The only tool required to complete the installation of any of the upgrades is a small cross-head screwdriver.

Warning

*Never carry out any work inside the computer with AC power applied.
Turn off the computer and unplug all power cords before starting work.*

Inside the system unit

The illustration below identifies the major components inside the system unit that are affected by the installation instructions in this chapter.



- 1 Video memory upgrade sockets.
- 2 Processor speed selection jumpers.
- 3 ZIF processor socket.
- 4 3.5" Floppy disk drive.
- 5 5.25" hard disk drive, under the CD-ROM drive.
- 6 CD-ROM drive.
- 7 SIMM sockets.
- 8 Floppy disk drive ribbon connector.
- 9 CD-ROM drive ribbon connector.
- 10 Hard disk drive ribbon connector.

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) SIMMs **must** be used: they give enhanced performance, most noticeably in cacheless systems.

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

You cannot easily install a SIMM in a socket while the socket immediately next to it is occupied. You may therefore need to remove a SIMM before you can install one.

Installing and removing SIMMs

1. Turn off the computer and unplug all power cords.
2. Take suitable anti-static precautions and remove the system unit cover.

Caution

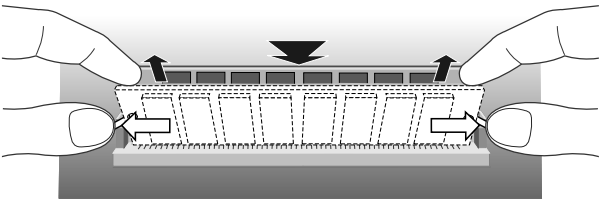
If you are unfamiliar with the recommended anti-static precautions, and/or the process of removing the system unit cover, refer to Appendix A, "Inside the System Unit".

3. Use the illustration at the beginning of this chapter to identify the SIMM sockets. Depending on how much memory is already fitted some of the sockets may be occupied.
4. Compare the current configuration of SIMMs with the configuration for the memory upgrade you intend to install.

Total Memory	Bank 1 sockets		Bank 2 sockets	
	MM1	MM2	MM3	MM4
8 Mb	4 Mb	4 Mb	-	-
12 Mb	4 Mb	4 Mb	2 Mb	2 Mb
16 Mb	4 Mb	4 Mb	4 Mb	4 Mb
16 Mb	8 Mb	8 Mb	-	-
20 Mb	8 Mb	8 Mb	2 Mb	2 Mb
24 Mb	8 Mb	8 Mb	4 Mb	4 Mb
32 Mb	16 Mb	16 Mb	-	-
36 Mb	16 Mb	16 Mb	2 Mb	2 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	-	-
68 Mb	32 Mb	32 Mb	2 Mb	2 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.

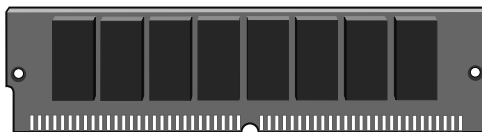


2. Lift the SIMM out of its socket. Hold the SIMM by its edges and avoid touching the metal contacts.

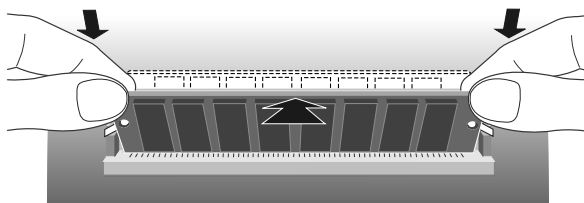
3. Place the SIMM in a suitable anti-static packaging.

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.



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 Appendix B, “*System BIOS and Setup*” for more information).

If an error message occurs check that you have:

1. Installed a configuration supported in the list above.
2. Correctly fitted the SIMMs in their slots.
3. 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.

Adding more video memory

Video memory is memory reserved for use by the on-board controller. More video memory provides more colours and/or higher resolutions (provided that your monitor can cope).

If your computer has 1 Mbyte of video memory, you can upgrade it to the maximum of 2 Mbytes.

There are no changes to be made to the system BIOS. The only immediate differences will be apparent when you come to make changes to your video driver settings.

To add video memory

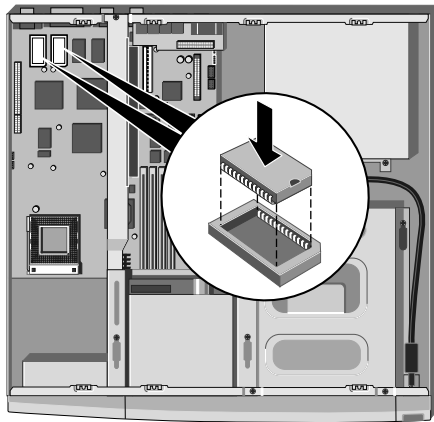
1. Turn off the computer and unplug all power cords.
2. Take suitable anti-static precautions and remove the system unit cover.

Caution

*If you are unfamiliar with the recommended anti-static precautions and/or the process of removing the system unit cover, refer to Appendix A, “*Inside the System Unit*”.*

3. If there are any expansion cards in the way, you may have to remove them. (Take note of which way all of the cables are

- connected.) Disconnect any cables connected to the cards, remove the screws that secure the cards at the rear of the system unit, then remove the cards from the system unit.
4. Use the illustration at the beginning of this chapter to identify the two video memory upgrade sockets.
 5. Unpack the upgrade kit and lay the memory chips out on an anti-static surface. Hold each chip by its edges and be careful not to touch the metal pins. These memory chips are particularly static sensitive. *Handle with extreme caution.*
 6. It is vital that the chips are fitted the right way round. Each chip has a notch at one end **or** small bevel at one corner, corresponding to the notch or bevel on the *socket* corner. These **must be** aligned as shown below.



7. One at a time, press the chips in the sockets, push firmly home.
8. If necessary, replace any expansion cards you removed earlier and reconnect any cables, etc.
9. Refit and secure the system unit cover.
10. You can now reconfigure your operating system to use the expanded capabilities of the video controller. See your operating system documentation for details.

Adding a second hard disk drive

Your computer system can support two 3.5" hard disk drives. Such dual drives are known as master and slave. A single drive, or the boot device in a dual drive system must be configured as master. The second, non-bootable drive in a dual drive system must be configured as slave.

IDE drives are usually configured using jumpers on the drive. Configuration details may vary from drive to drive. Most drives are supplied with documentation describing how to configure the drive. If you are uncertain about configuring the drive consult your supplier.

Installing the drive

To install the hard disk drive:

1. Turn off the computer and unplug all power cords.
2. If there is a diskette in the diskette drive, remove it.
3. Take suitable anti-static precautions and remove the system unit cover.

Caution

If you are unfamiliar with the recommended anti-static precautions and/or the process of removing the system unit cover, refer to Appendix A, "Inside the System Unit".

4. Unplug the power and signal cables from the rear of the CD-ROM and floppy drives.
5. You will need to remove the floppy drive bay in order to gain access to the hard disk drive bay. Identify the screws which secure the floppy bay and loosen them to remove the floppy bay from the system unit.
6. Unplug the power and signal cables from the rear of the hard disk drive.

7. You then need to remove the CD-ROM drive bay from the system unit as the hard disk is fitted in a drive bay under the CD-ROM drive. Identify the screws which secure the drive bay into the system unit and then loosen them to release the drive bay.
8. Slide out the drive bay and place it on an anti-static surface.
9. You then need to loosen the screws which secure the hard disk drive bay into the chassis and slide it out of the system unit.
10. Place the upgrade hard disk into the hard disk drive bay and secure it with the four side screws.
11. Place the hard disk drive bay back into the system unit and secure the drive bay back into the system unit.
12. Connect the hard disk's power and signal cables.
13. Refit the CD-ROM and floppy drives into the system unit and reconnect the power and signal cables for both.
14. Refit the system unit cover.

Upgrading the processor

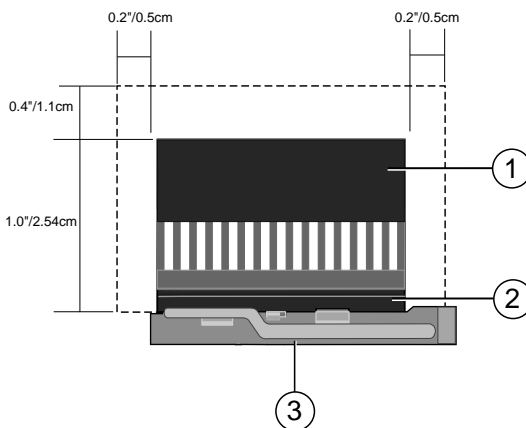
The computer is supplied with a Pentium processor. The ZIF (zero insertion force) processor socket on the motherboard is designed to accept a variety of Intel Pentium processors.

You can upgrade your processor by replacing it with one of higher performance. The motherboard supports the full range of OverDrive processors known at the time of writing.

The system also 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'.

Intel Pentium OverDrive

When installing an Intel Pentium processor, you must ensure that there is sufficient air space around it. If you do not leave enough air space, the processor may overheat. So, ensure that no obstructions such as cables or expansion cards, intrude upon the open air space shown below:



- 1 Heatsink fan
- 2 Processor
- 3 ZIF processor socket

Removing the old processor

1. Turn off the computer and unplug all power cables.
2. Take suitable anti-static precautions and remove the system unit cover.

Warning

If you are unfamiliar with the recommended anti-static precautions and/or the process of removing the system unit cover, refer to Appendix A, "Inside the System Unit".

3. If the computer was turned on prior to commencing this procedure, *wait at least 15 minutes* for the processor to cool down before proceeding.

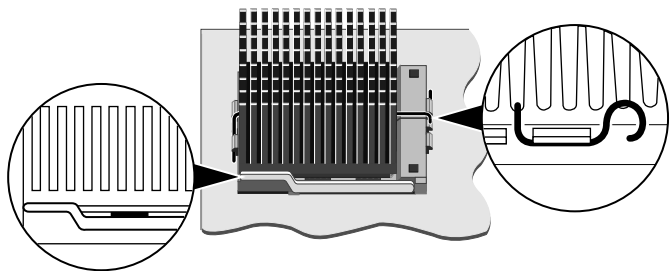
Warning

The processor can get very hot. You may burn your fingers if you attempt to remove the processor before it has cooled down. Also, the processor's pins expand slightly when hot and this can prevent it being removed from the socket.

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. Ensure that the securing lever on the ZIF socket is still in the upright position.
2. 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.

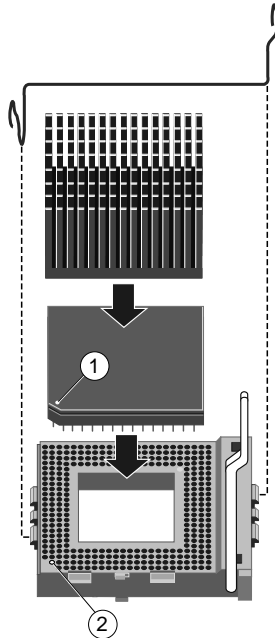
3. Place the processor in the socket, making sure that it is correctly aligned and that you do not bend or otherwise damage the pins.

If the upgrade processor is not big enough to occupy the entire socket it should be positioned centrally.

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.



1 Positioning guide

2 Keyed corner

6. You will need to adjust the processor speed selection jumpers on the motherboard. See Appendix A, *"Inside the System Unit"*, for more information about locating and adjusting motherboard jumper settings.
7. If necessary replace the expansion cards you removed earlier.
8. Replace the system unit cover.

6 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.

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 Appendix B, “*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.

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 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 serious fault and the system may halt. Switch off for 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
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 problem persists, insert a system diskette, press F1, backup the data held on the defective hard disk and try reformatting it.
No boot device available	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.

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.

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 Appendix A, *“Inside the System Unit”* 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 Chapter 4, *“Expansion Cards”* for information, and in Appendix B, *“System BIOS and Setup”* to see whether your chosen settings are useable. Check also that the resources used are registered in the BIOS.

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, there may be a fault with the CMOS battery. See Appendix A, “*Inside the System Unit*” and Appendix B, “*System BIOS and Setup*”.

Sensonic Anti-theft device

If the Sensonic Anti-theft siren sounds and you need to disarm it you can do so depending on the current state of the computer.

The computer is off

If the computer is off when the siren sounds you need to turn on the computer and you will then be prompted to enter the password. This will stop the siren.

The computer is in standby

If the computer is in standby state when the siren sounds, press the purple standby button on the front bezel to bring it out of standby. You will be prompted to enter the password to stop the siren.

Further details can be found in the on-line help file provided with the application.

The system's disk drives

Refer also to Chapter 3, “*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, and that the disk is the correct way up in the drive and that it is a data CD.

PD/CD-ROM drive

If you have problems accessing a CD or PD cartridge check that you have inserted the disk/cartridge correctly, and also that you have not inserted both. If you are having problems writing to a PD cartridge check that it not write-protected.

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.

A

INSIDE THE SYSTEM UNIT

This appendix provides instructions regarding access to the inside of your computer system for the purposes of maintaining or upgrading the system. Details of the various jumper switches are included and instructions to replace the battery are also provided. The only tool required is a small cross head screwdriver.

Warning

Turn off the computer and unplug all power cords before removing the system unit cover.

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 system unit 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.

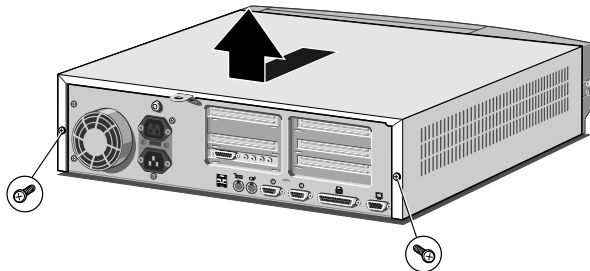
Handle static-sensitive items with extreme care. Hold expansion cards and add-on components only by their edges, avoiding their electrical contacts. Never touch the components or electrical contacts on the motherboard or on expansion cards. In general, do not handle static-sensitive items unnecessarily.

Keep all conductive material, and food and drink, away from your work area and the open computer.

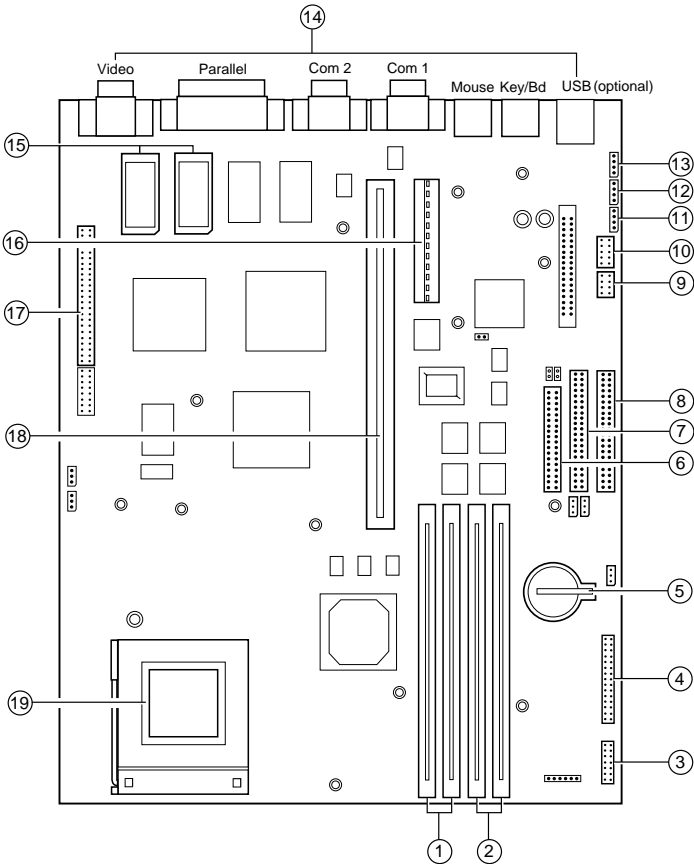
Opening the system unit

To remove the system unit cover:

1. Turn off the system unit.
2. Set the AC power outlet switch to its Off position.
3. Unplug all power cords from the rear of the system unit
4. If the system has a caselock (located at the rear of the system unit) turn the caselock key to the unlocked position.
5. Unfasten the two rear casing screws.
6. Slide the top cover rearwards slightly, then lift it off.

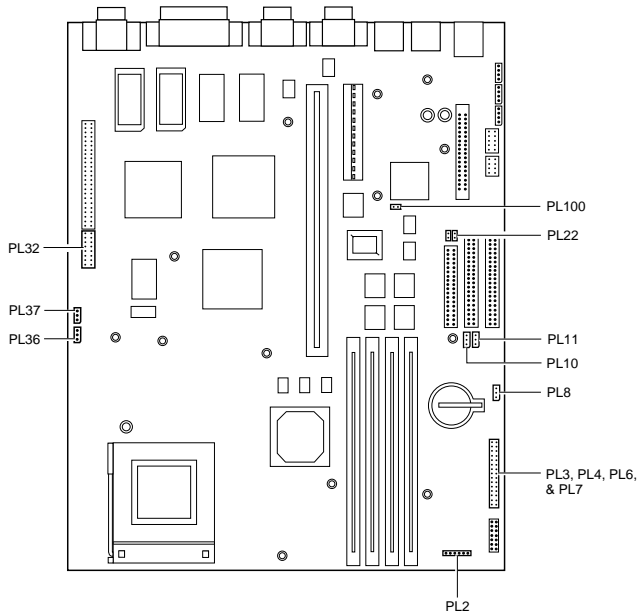


Board layout



- | | | | |
|----|-------------------------|----|--------------------------|
| 1 | SIMMs sockets 3 and 4 | 11 | Radio card connector |
| 2 | SIMMs sockets 1 and 2 | 12 | TV audio connector |
| 3 | Front panel connectors | 13 | CD audio connector |
| 4 | System connectors | 14 | External ports |
| 5 | CMOS Battery | 15 | Video upgrade sockets |
| 6 | Floppy ribbon connector | 16 | Power connections |
| 7 | CD ribbon connector | 17 | Video feature connection |
| 8 | HDD ribbon connector | 18 | 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 or switch settings other than those identified here, unless told to by your supplier or an authorized maintainer. Otherwise, you may damage the system processor, the motherboard or both.

There are only a few jumpers on the motherboard that you may need to alter. All others are set at the factory and should not be changed.

In this section, “1-2” means the jumpers should be fitted across pins 1 and 2, “2-3” means the jumper should be fitted across pins 2 and 3, and so on. “Open” means that no jumpers should be fitted; “Closed” means that all jumpers should be fitted.

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

BIOS upgrade and recovery

These jumpers should not normally be changed except by a service engineer or at the direction of a service engineer.

Clearing CMOS	PL8
CMOS battery connected (default)	1-2
CMOS battery disconnected	2-3
BIOS image selection	PL10
Boot using normal BIOS (default)	1-2
Boot using recovery BIOS	2-3
BIOS reprogram	PL11
Enabled (default)	1-2
Disabled	2-3

Floppy disk control mode

PL22 Default position link pins 1-3 which enables both 3 and 2 mode operation of the drive. If this is not required link pins 3-4 for 2 mode operation of the drive.

System Fan

PL36 System fan, slow mode.
 PL37 System fan, full speed mode.

Soundblaster enable

PL100 Near CD audio connector. Link pins 1-2 (default).
 Link pins 2-3 for audio disable.

Processor and BUS clock

These settings *must not* be changed except in the event of a processor upgrade. Full details of the processor's required settings should accompany the new processor and the appropriate board links should then be identified from the table below.

Warning

Do not alter these links under normal circumstances as it could lead to the destruction of the processor and/or other vital components on the board.

Processor Speed	Jumper Block PL32				
	BF0	BF1	FS1	FS0	ISA
Pentium 100 MHz	2-4	1-3	7-8		11-12
Pentium 120 MHz	4-6	1-3		9-10	11-12
Pentium 133 MHz	4-6	1-3	7-8		11-12
Pentium 150 MHz	4-6	3-5		9-10	11-12
Pentium 166 MHz	4-6	3-5	7-8		11-12
Pentium 200 MHz	2-4	3-5	7-8		11-12

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 if they become loose you may need to re-attach them.

This range of pins is not for jumpers, but is used to connect various features around the system case to the motherboard.

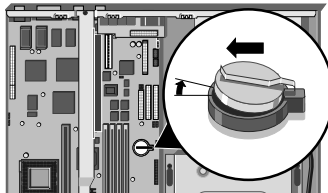
Connector	Pins	Function
PL2	1 - 2	Left stereo speaker
	5 - 6	Right stereo speaker
PL4	1 - 2	System standby restore switch
	3 - 7	Infra-red controller
	8 -11	Mono speaker
	12-13	Message LED
PL6	1 - 4	HDD active light
	5 - 9	Keylock (not fitted)
	10-11	System in 'power standby' light
	12-13	System hardware reset (not fitted)

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.
2. Take suitable anti-static precautions and remove the system unit cover.
3. Identify the battery holder from the following diagram:



4. Carefully disconnect and remove any expansion cards that may obstruct easy access to the battery.

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.

5. Lift the edge of the battery far enough to clear the base of the holder, then slide the battery from under the contact spring.
6. Check the replacement battery is identical to the old battery.
7. Taking care not to touch the top or bottom surface of the battery, pick up the replacement with the positive (+) terminal upwards.
8. Slide the battery into the holder from the same side the old battery was removed.
9. Replace any expansion cards you had to remove in step 4.
10. Refit the system unit cover.

11. Dispose of the old battery according to the maker's instructions.

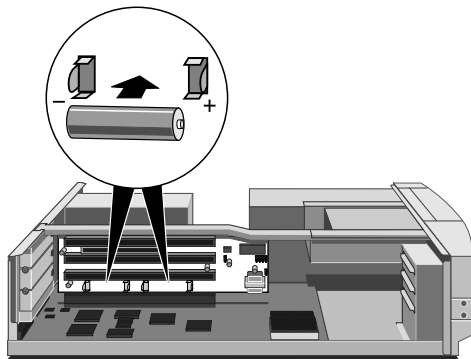
When you turn on the computer you will have to run the BIOS Setup utility to re-enter the hardware configuration. If in any doubt refer to Appendix B "*System BIOS and Setup*".

Replacing the Sonsonic batteries

If you have the Sonsonic Anti-theft device fitted as an option you may have to replace the batteries. The batteries are fitted to the riser card and have an average life of 3-4 years. You can use the Sonsonic Anti-theft software to check the state of the batteries. If it is low then you will need to replace them. Two AA alkaline batteries are required.

To replace the batteries

1. Turn off the computer and unplug the power cord.
2. Take suitable anti-static precautions and remove the system unit cover.
3. If you have any expansion cards fitted to the left-hand side of the machine you will need to remove them in order to replace the batteries.
4. Remove the old batteries and replace them with AA alkaline batteries, make sure the positive end of the batteries point towards the front of the machine as shown below:



5. Refit the system unit cover.

B 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.

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.

Entering Setup

While the Mitsubishi Electric diamonds are displayed on the screen, you can press the **F1** key to start the BIOS Setup utility.

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 Appendix A, *“Inside the System Unit”*.
- ◆ The computer’s configuration may have been changed, for example by the addition of more system memory, more cache 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:



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 that you entered with.



To restore the original default setting

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.

The Save Settings options 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 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.

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 3.5" floppy diskette drive. 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.

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.

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.

A dialog asks you to confirm that you want to replace any existing power-on password.

5. 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).

Displayless Operation

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

Keyboardless Operation Mode

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 if your computer does not include 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 EFFFFh.

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

Note that the two 32 Kbytes areas from E0000h to E7FFFh and E8000h to EFFFFh cannot be shadowed independently of the system BIOS 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 option 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’.

Plug and Play

You can either enable or disable the Plug and Play adapter configuration. 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 channels and interrupts.

Some areas are shown as *Allocated by the system* and are only for your information. Each resource can be set to either **Available** or **Not available**.

If shown as *available*, 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 Cards” 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 features provided aim to reduce the average amount of electricity consumed by your computer. The Power Management is ‘enabled’ as default.

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 it does not, it may be permanently damaged.

Some features in the Power Management will have been enabled in our factory to ensure compliance with the Energy Star Programme. Refer to the pre-installed windows on-line help file for information about the Energy Star Programme.

The Apricot Power Management

Time till power saving

The system will enter low power standby mode after the specified period of mouse/ keyboard inactivity. If “Disabled” then the system will *only* enter power saving mode if the standby button on the front the machine is pressed. The processor slows down, and provided that the **Monitor control** option is also “Enabled”, the monitor display will blank out. The operating system and your system continue to run, although slowly. You can wake up the computer again by moving the mouse or pressing any keyboard key.

Hard disk power saving

If this option is “Enabled”, the hard disk drive will stop spinning or spin down after 20 minutes of inactivity. If “Disabled” then the hard disk will spin down only when the Standby button on the front of the machine is pressed.

Monitor control

This option is only intended to be used with monitors that support Display Power Management Signalling (DPMS). If “Enabled” the monitor will go blank when the computer enters standby mode.

Another way of saving monitor power is by using the power-saving features of Windows, see the on-line Windows help for details.

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 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
301	Keyboard clock line failure		

C TECHNICAL INFORMATION

Specifications

<i>Processor</i>	Type	Intel Pentium 100 MHz upwards
<i>Bus speeds</i>		50, 60, 66 MHz
<i>Chipset</i>		Intel Triton II
<i>BIOS ROM</i>	Surepath 2.0	2 Mb Flash programmable.
<i>Memory</i>	Simms	32-bit EDO simms must be used which are fitted in pairs.
<i>Video</i>	Chipset	ATI 264VT/GT PCI local bus
	Video RAM	1 Mb onboard upgradeable to 2 Mb
	Resolutions	EVGA 1280 x 1024 EVGA 1024 x 768 SVGA 800 x 600 VGA 640 x 480
<i>Cache</i>	On board	Pipeline burst 256 Kb or 512 Kb modules with integral Tag RAMs.
<i>Audio (Optional)</i>	On board	Creative Labs Vibra 16CL Internal FM synthesiser.
<i>I/O ports</i>	Serial	Two 9-way male D-Type RS-232
	Parallel	25-way female D-type. EPP/ECP compatible.
<i>Keyboard</i>		Win 95 keyboard, AT-compatible
<i>Mouse</i>		PS/2-compatible two-button
<i>USB (Optional)</i>		Dual stacked Universal Serial Bus Port
<i>Hard disk interface</i>		Dual AT-Attachment/Enhanced IDE
<i>Expansion</i>	Riser board	One full length and two half length ISA slots One half length PCI slot One full length shared ISA or PCI slot

Physical Characteristics

Weight and dimensions

Component	Height	Depth	Width	Weight
System unit	120 mm	400 mm	435 mm	10-11 Kg
Keyboard	45 mm	170 mm	465 mm	1.4 Kg

Depending on configuration

Temperature and Humidity ranges

Range	Temperature	Relative humidity with no condensation
Operational	+10 to +35°C	20% to 80%
Storage/Transport	0 to +55°C	20% to 80%

Voltage range

The PSU voltage range is initially set to that appropriate for the country in which it is first sold.

Setting	AC Voltage	Frequency
115V	100 to 127V	50 to 60 Hz
230V	200 to 240V	50 to 60 Hz

Warning

The power cord supplied with the system complies with the safety standards applicable to the country in which it was originally sold. You should consult an Apricot dealer before using the system in another country.

Warning

The laser beam inside the CD-ROM drive is harmful to the eyes if looked at directly. Do not attempt to remove the drive cover or otherwise disassemble the CD-ROM drive. If a fault occurs, call an authorised maintainer.

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 3, *'Using your computer'* 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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