



apricot

OWNER'S HANDBOOK

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Revision 01

Safety and Regulatory Notices

Read the separate *Power Connection Guide* before using the computer for the first time.

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.

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

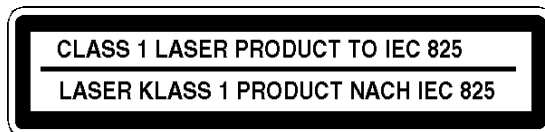
To prevent fire and electric shock, do not expose any part of the computer to rain or moisture.

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

Microphone, headphone and speaker cables should be less than 2 metres long.

Warning: This product contains a replaceable lithium battery. 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, the battery may explode. Replace a discharged battery with one of the same type; another type may explode or ignite. Dispose of the battery in accordance with the manufacturer's recommended instructions. Do not attempt to recharge, disassemble or incinerate. Keep away from children.

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.



Use the CD-ROM drive only as described in this manual. Failure to do so may result in exposure to hazardous radiation. Refer to the labels on the computer to establish which of the following applies.

E.E.C.

This equipment complies with the relevant clauses of following European directives:

89/336/EEC and **73/23/EEC**, and is able to bear the **CE** mark.

Radio and television interference

The computer described in this manual generates and uses radio frequency energy for its operation. If it is not installed and used properly, in strict accordance with the manual, it may cause interference with radio and television reception.

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I INTRODUCING YOUR COMPUTER

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

This guide assumes that your computer is already set up and ready for use. If you have yet to get your computer up and running, please refer to the “Quick Start Up Guide” before you read any further.

Warning

Read the separate Power Connection Guide before using the computer for the first time.

Your Multimedia Computer

Welcome to your MS 530 system! An all-in-one entertainment centre which combines sound and vision with sophisticated computing facilities.

The PC can be instantly transformed into a TV/ Teletext set with additional facilities to capture, store and edit images as well as providing the opportunity to view CDi titles and Photo CDs.

It can also be turned into an audio centre by tuning into the radio or by playing your favourite audio CDs in the CD drive provided. The CD drive gives you access to a whole host of sophisticated educational, professional and games software.

The infra-red remote control provides you with a familiar user-friendly interface allowing you to switch from one activity to another at the touch of a button.

All in all, your MS 530 multimedia system is a “complete” system offering you the very latest in computer technology.

Standard Features

The standard features of the Apricot MS 530 multimedia system include:

- Integral all-in-one chassis with a slide-out LPX cage.
- Intel Pentium system processor with upgrade capability.
- Standard 8 Mbytes of motherboard random access memory (RAM), upgradeable to 64 Mbytes by the use of single in-line memory modules (SIMMs).
- Optional second level system memory cache (at least 256 Kbytes).
- BIOS Setup configuration utility in read-only memory (ROM).
- Full power management.
- Optional TV with Teletext support and operation.

- High quality 17" tube.
- Infra-red remote control with fully integrated two button mouse.
- Optional radio card.
- On-board high performance PCI bus video based on a Cirrus Logic GD543x controller, equipped with at least 1 Mbytes of video RAM, upgradeable to 2 Mbytes.
- Dual PCI Integrated Drive Electronics (IDE) hard disk drive interface with an ATA-PI CD-ROM drive included as standard.
- Five expansion card slots.
- 1.44 Mbytes 3.5" diskette drive and 3.5" hard disk drive.

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).

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 will blank, and some of the computer's components will slow down. Do not worry! This is meant to happen. Pressing any of the keys on the keyboard or moving the mouse should restart the computer in full power mode.

Further detailed information can be found in the Power Management Help file provided with the system which can be found in the Apricot Folder.

Pictorial Guides

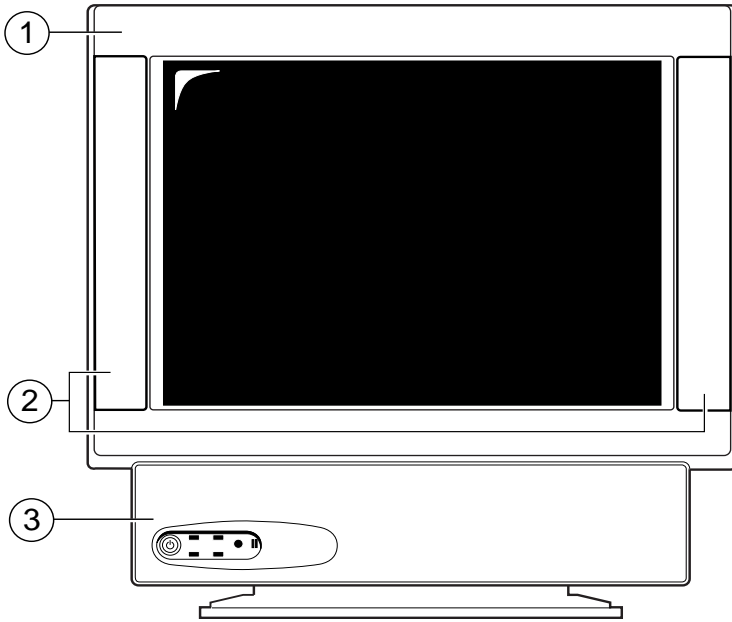
Front View:

1. Monitor
2. Speakers
3. Front Control Panel (Drops down to reveal further features).

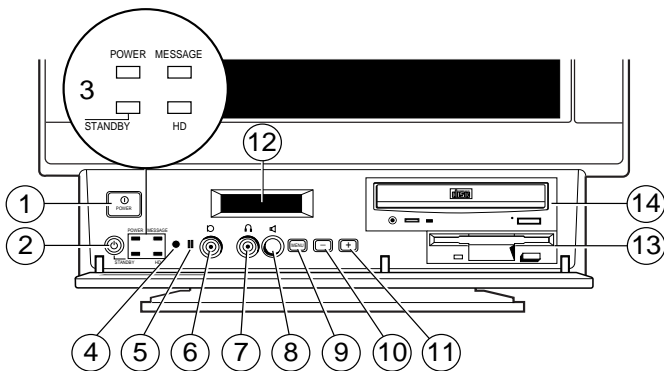
Front Control Panel:

1. Power switch
2. Standby button
3. LED indicators for the states shown.
4. Infra-red remote sensor
5. Built-in microphone
6. Microphone socket
7. Headphone socket
8. Volume control button
9. Menu button
10. Decrement (-) button
11. Increment (+) button
12. LCD control function display
13. 3.5" floppy disk drive
14. CD-ROM drive

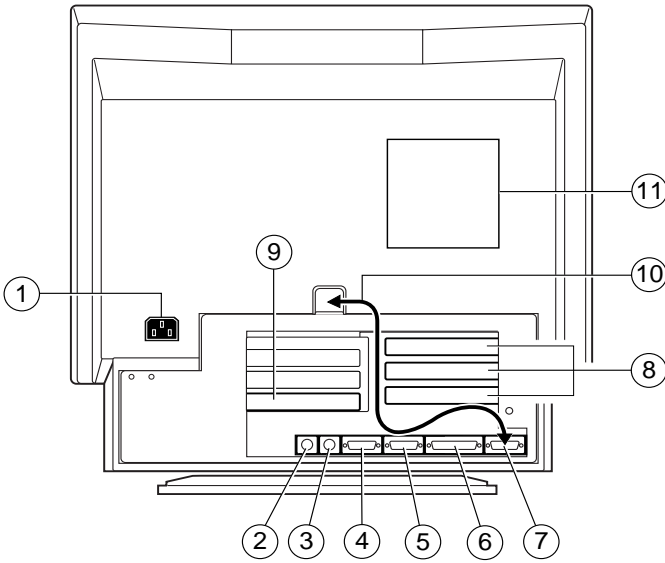
Front View



Front Control Panel



Rear View:



1. AC Power Inlet
2. Keyboard port
3. Mouse port
4. Serial port (COM 1)
5. Serial port (COM 2)
6. Parallel/printer port
7. Monitor connection
8. Expansion card slots
9. Audio external connectors
10. Monitor lead (which connects to 7)
11. System fan vents

2

USING YOUR COMPUTER

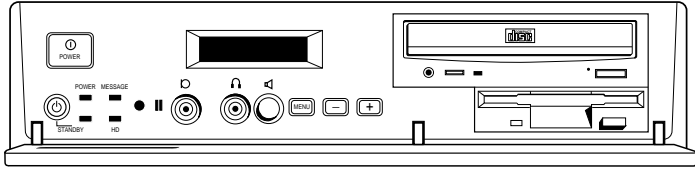
This chapter contains all you need to know in order to start working with your computer quickly. It gives you detailed instructions on how to access and use the various features of the system.

Warning

Read the separate Power Connection Guide before using the computer for the first time.

Using the Front Bezel Controls

The computer comes with many front panel controls, and activity indicators which are all relatively simple to use:



The POWER switch is used to turn the computer and monitor on and off.











The following table lists the colours of the various LED's on the front bezel and explains their meaning when active (i.e. when the LED displays the colour indicated below):

Indicator	LED	Meaning when active
Power On	Green	The system is powered.
Standby	Yellow	The monitor has entered standby mode. The LED will begin to flash.
Message	Red	There is an unread message in the Message Centre.
Hard Disk Drive	Green	The computer is using the hard disk drive.

The Control Function Display

The LCD Control Function Display is a display panel which informs you of any unexpected situations such as power loss, loss in signal etc. When the computer is switched on, the LCD displays the horizontal and vertical refresh rates of the monitor.

The LCD Control Function Display also has a menu which allows you to alter the following monitor settings:

Menu	Option	Function	
HYP	Hypersound	ON/OFF	Enable/Disable wider sound spectrum.
CNT	Contrast		Alters the contrast level of the monitor.
BRT	Brightness		Alters the black level of the screen.
HSC	H-Size		Alters the horizontal size of the image on the screen.
HPC	H-Position		Alters the horizontal position of the image on the screen.
VSC	V-Size		Alters the vertical size of the image on the screen.
VPC	V-Position		Alters the vertical position of the image on the screen.
PCC	Pincushion		Straightens the left and right sides of the screen image.
TRA	Trapezoid		Adjusts the parallelism of the left and right sides of the screen image.
RRC	Raster Rotation		Adjusts the rotation or twist of the picture.
PRL	Parallelogram		Adjusts the vertical slant or tilt of the screen image.
CTC	Colour Temp	Adjusts the level of blue and red colour in the screen image.	
DEG	Degauss	This is used to eliminate possible colour shading or impurity.	
CNV	H-Static-Conv	Adjusts the horizontal alignment of the red, green and blue beams.	

To alter any of the above features, the MENU button needs to be pressed to display the menu:



The + and - buttons (next to the MENU button) can be used to toggle between the various options in the menu. As you step through the various options they begin to flash. To select the option, press the MENU button when the required option is flashing.

You will then be able to alter the current level of the selected option by pressing either the + or - buttons, to increase or decrease the current level. The change is indicated by a series of asterisks below the selected option:



The warning messages you are most likely to come across are:



The monitor has entered standby mode. The standby LED will flash.



The system may have entered into power down mode.

These two warning messages are normal during the operation of the system if the motherboard has entered standby mode.



There is a fault condition, turn the system off.

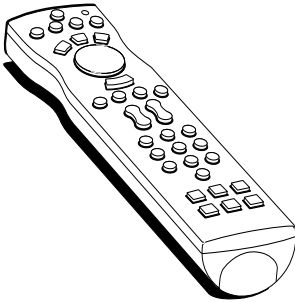


There is a problem, turn the system off.

If you ever come across any of the above warning messages, then it is advisable to turn the computer off, check that the power cord is securely and correctly in place, and then switch the power back on. If the problem persists then contact your local authorised dealer.

Using the Infra-Red Remote Control

The infra-red remote control offers a friendly user interface that is immediately familiar to the inexperienced user.



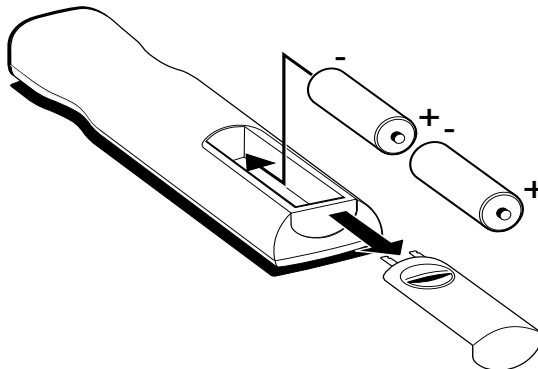
It has an integral two-button mouse to control the major functions of the multimedia applications.

Pressing the HELP button on the remote control displays the 'Remote Status' window (shown below).

Pressing the red coloured button, labelled Help on the 'Remote Status' window displays the on-line help file. An on-line tutorial is also included in the help file.



The infra-red remote operates on two standard AA batteries which are inserted into the remote as shown below:



3 USING THE SYSTEM DRIVES

This chapter details useful information on the correct operation of the drives fitted to your computer.

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.

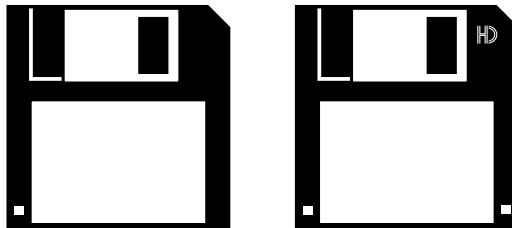
The 3.5" diskette drive fitted to your computer can read and write both 720 Kbytes disks (if marked "DD" or "double density") and 1.44 Mbytes disks (if marked "HD" or "high density"). The HD disks can hold twice the capacity of DD disks, it is therefore more economical to purchase them.

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

Caution

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

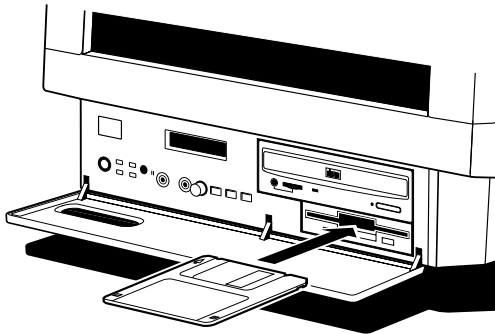
The immediate physical differences between the HD and DD floppy disks are shown in the diagram below:



The HD disks have the 'HD' logo near the window 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

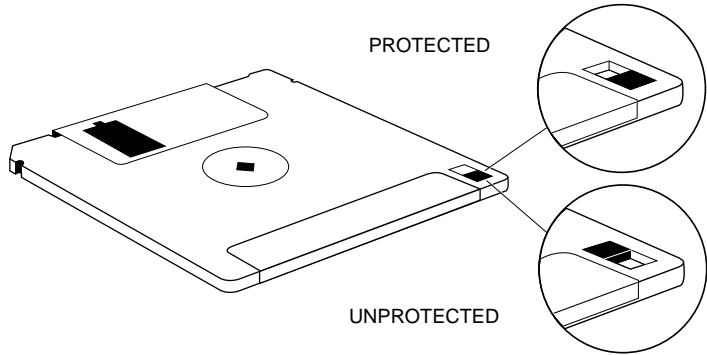
Before attempting to remove a diskette, make sure that the drive is not currently in use (the diskette activity indicator, opposite the drive's eject button must be unlit). Press the eject button on the drive. The drive mechanism disengages and the diskette is ejected half-way out of the drive.

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.

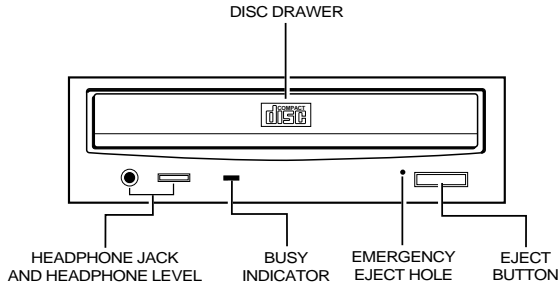
The software required to control the CD-ROM drive depends on the operating environment; see the Help provided with your computer or ask your supplier for details.

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.

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 should illuminate to green when the system is powered. When it is active (i.e. busy reading information) it changes to yellow.

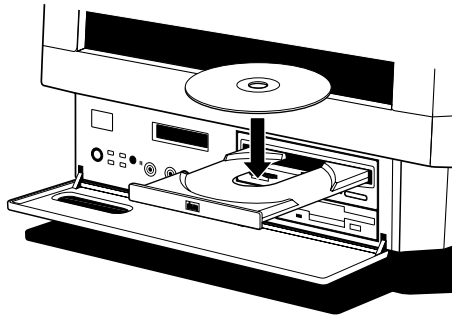
The CD-ROM drive has the following features:



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 the audio CD.

Inserting a compact disc

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



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

Removing a compact disc

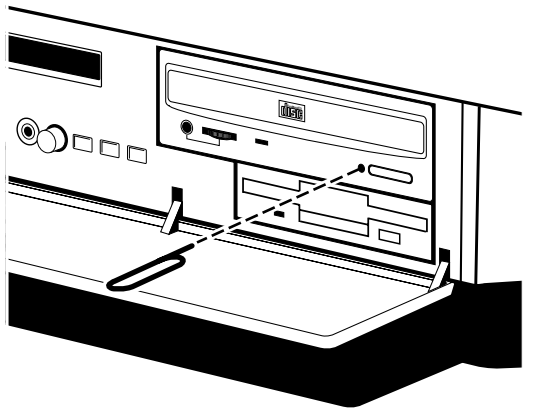
Before attempting to remove a CD, ensure that the drive is not currently active (the drive's activity indicator should be green).

Press the 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 below:



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 hard disk drive

Apricot computers are supplied with one internal or 'primary' hard drive designated as drive **C:** in the system BIOS. The operating system will normally be installed on this drive and it will only have one partition which will have been made active as the bootable disk.

Data is stored on the hard drive in directories and subdirectories, often referred to as 'folders', for example, most of the Windows 95

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

DriveSpace

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

Software Backup

Within Windows 95 there is considerable help on numerous topics including backing up or, making security copies of your software. It is vital to maintain discipline of regularly backing up your data. Power cuts or hard disk failure being just two reasons to do so.

Your operating system and/or applications e.g. word processing software can be easily re-installed from your master disks but the letters, reports which you have created would be lost permanently.

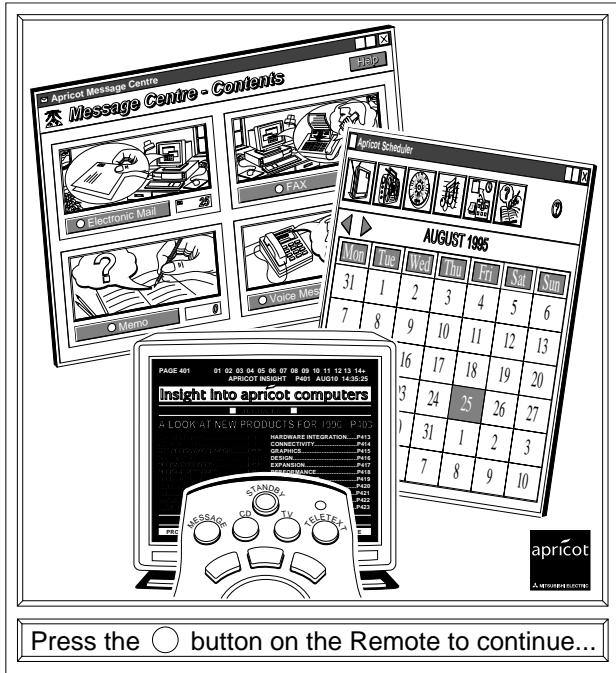
Copy your data files to floppy disks or, use proprietary software designed to do software backups, such as the one in Windows 95, then keep them in a safe place. Your files may not be very large but they will be impossible to replace once lost.

4

THE MULTIMEDIA APPLICATIONS

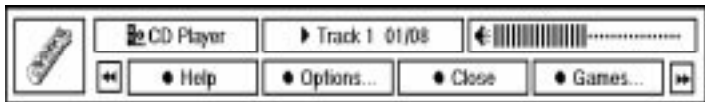
This chapter details instructions on how to access the software which comes with your computer, further detailed information can be found in the help files which come with the applications.

The Infra-red Remote Control



The infra-red remote control which comes with your system provides you with a user friendly interface.

When the HELP button on the remote control is pressed the remote status window appears:

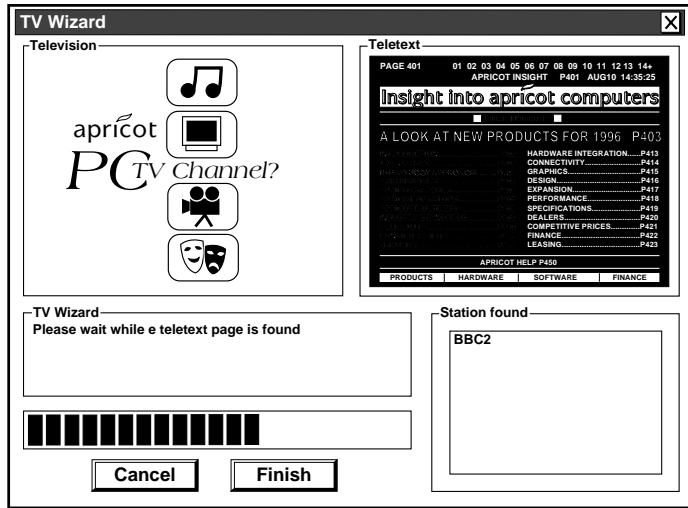


This window provides you with the current status of the remote controlled program. The example given above, shows the status of the CD-ROM.

The four labelled coloured buttons provide additional functionality when the status window is visible, and are selected by pressing the corresponding coloured buttons on the remote control.

The Apricot TV/Teletext Application (Optional)

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

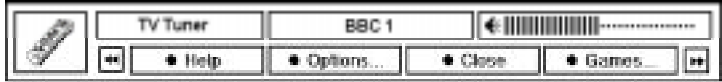


The TV Wizard will automatically tune into your local channels and set the correct channel names, numbers and Teletext pages. Once complete, the TV will start up in full screen mode.

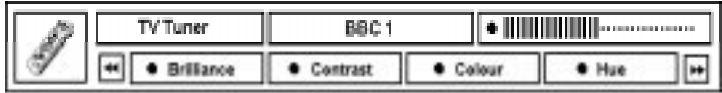
Pressing the TV button on the remote control will toggle the TV application between its various display modes: full screen, window, and backdrop.

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

Some of the TV application settings can also be accessed by pressing the HELP button on the remote control to display the remote status window:



You then need to press the green button labelled 'Options' to list the options you wish to alter:

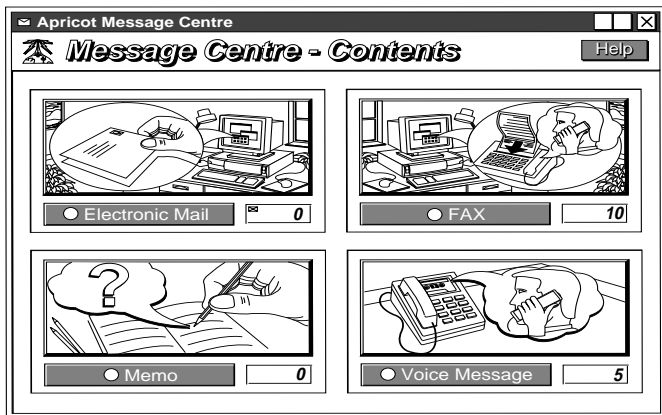


Pressing any of the four coloured buttons selects the corresponding option with its current level displayed as shown in the status window above. You can increase or decrease the current level by pressing either the '+' or '-' buttons on the remote control.

The Apricot Message Centre Application

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

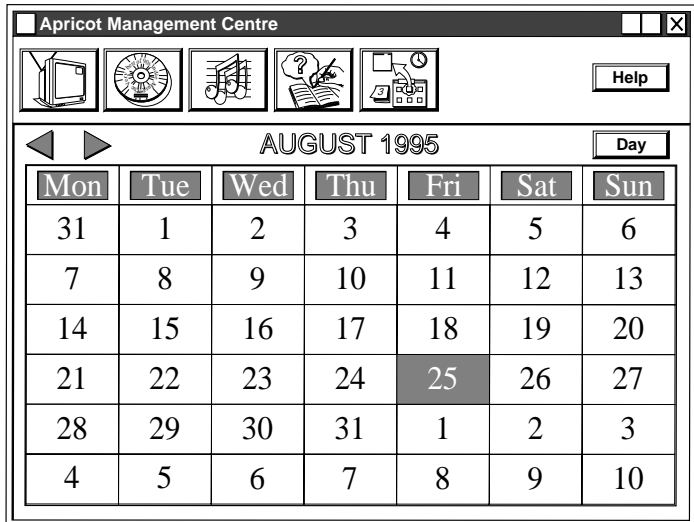
The Message Centre LED on the front panel of the machine will flash indicating that you have received a message in the Message Centre. To find out what message has been sent, press the MESSAGES button on the remote control. This will open a single window with artistic views of the four message types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



The Apricot Media Manager

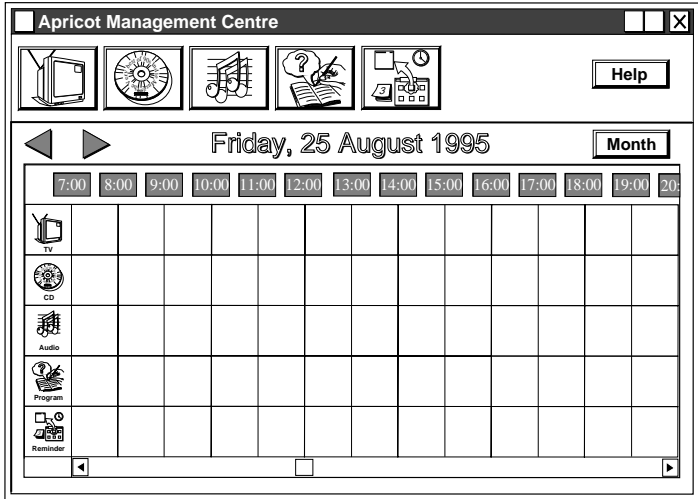
The Apricot Media Manager application provides an easy way to schedule the automatic launch of other software such as the TV, CD applications. In addition the Media Manager allows you to create automatic pop-up reminders and launch third-party applications.

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



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

Any other day is easily selected by clicking on the day with your mouse, which subsequently becomes highlighted (as 25th August, shown above). Then either, press the day button on the monthly view, or double-click the selected day which takes you into the daily view display:



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

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

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

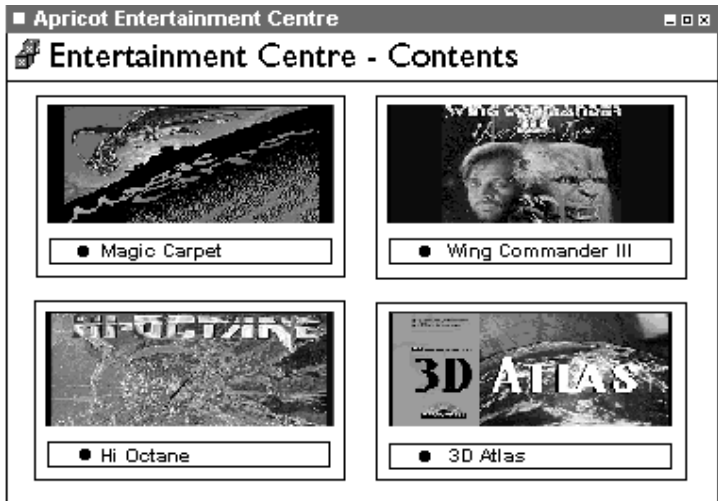
Further detailed information can be found in the on-line help file.

The Apricot Entertainment Centre Application

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

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

Before running your chosen game (except for the 3D Atlas program) Windows 95 will shut down and reboot the system in DOS mode, there is no reason to be concerned- this is meant to happen.



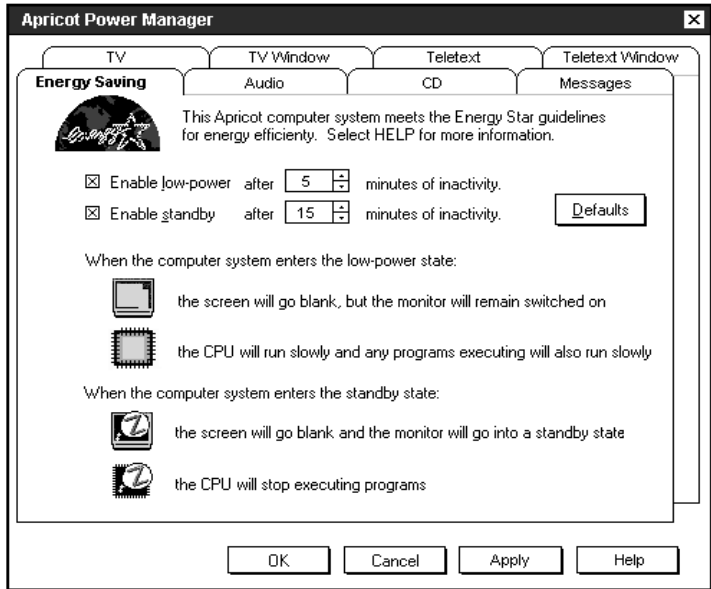
The Apricot Power Manager Application

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

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

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

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



Refer to the on-line help file for further details.

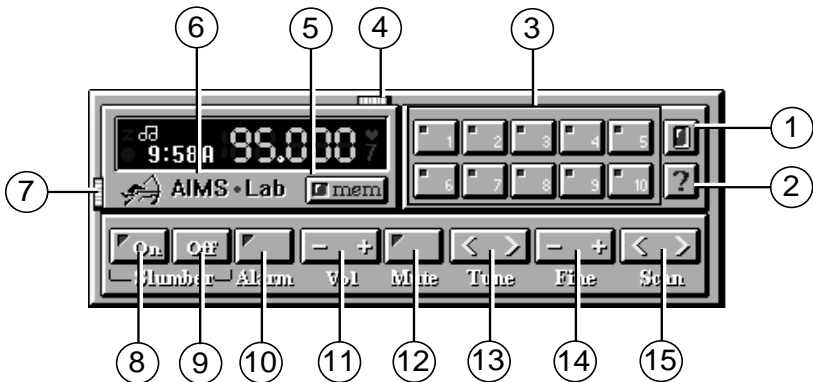
The Radio Application (Optional)

The radio application is accessed via the remote control. Press the HELP button to display the remote status window, and then press the coloured button on the remote control corresponding to the radio application.

If you can not see the radio application listed, then you need to press:

▶◀ the forward or rewind buttons on the remote control to step through the options. You then need to press the coloured button corresponding to the radio application on the remote control.

The radio interface is very easy to use, and is similar to a car radio (shown below):



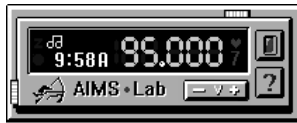
- 1 Power (On/Off)
- 2 Help button
- 3 Pre-set channel buttons (1-10)
- 4 Horizontal resize button
- 5 Memory button, saves the current frequency to a pre-set station.
- 6 Clicking the logo minimizes the radio display.
- 7 Vertical resize button
- 8 Radio mutes after pre-set time.
- 9 Turns the timer off.

- 10 Sets the radio to begin playing at the specified time.
- 11 Increase/decrease the volume.
- 12 Turns off the sound.
- 13 Increase/decrease tuner frequency (0.1 MHz).
- 14 Increase/decrease tuner frequency (0.025 MHz)
- 15 Search next/previous stations.

Pressing the vertical resize button ⑦ makes the lower part of the display disappear:



Pressing the horizontal resize button ④ makes the pre-set buttons disappear:



The Tune button is also used to set the hour setting on the alarm and the minute setting on the slumber.

The Fine tune button is also used to set the minutes of the alarm.

Further detailed information can be found in the on-line Radio Help file which is accessed by pressing the Help button ② on the radio.

5 SYSTEM UPGRADES

Read this chapter *before* purchasing any upgrade. If in any doubt consult your supplier. 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 must be thoroughly familiar with all the relevant instructions.

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

The only tool required to complete the installation 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.

Adding more system memory

The computer's motherboard is fitted with sockets for four SIMMs (single in-line memory modules) BUT two of them are obstructed by the CD-ROM drive and therefore cannot be used.

The SIMMs sockets are located at the front of the mother-board. SIMMs with capacities of 4, 8, 16 or 32 Mbytes are supported, giving a maximum capacity of 64 Mbytes.

SIMMs **must** be fitted in pairs and the pair must be identical. The system does not require parity checking (36 bit) SIMMs. Conventional 32 Bit SIMMs with a refresh rate of 70ns for a 5V power supply is the specification. The newer Enhanced Data Output (EDO) type SIMMs are supported and will give enhanced performance, more noticeably if L2 cache is not fitted.

This table shows all the supported memory configurations.

Total memory	Bank0	Bank 1
8 Mb	4 Mb	4 Mb
16 Mb	8 Mb	8 Mb
32 Mb	16 Mb	16 Mb
64 Mb	32 Mb	32 Mb

Installing and removing SIMMs

1. Turn off the computer and unplug the power cord.
2. Take suitable anti-static precautions and pull out the rear LPX system cage.

Caution

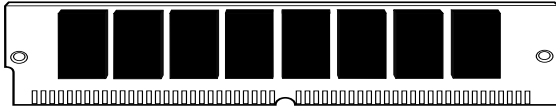
If you are unfamiliar with the recommended anti-static precautions and/or the process of pulling out the LPX system cage, refer to Appendix A, "Inside the System Unit".

3. Compare the current configuration of SIMMs with the configuration for the memory upgrade you intend to install. You

will have to remove the existing SIMMs, before going on to install the new SIMMs.

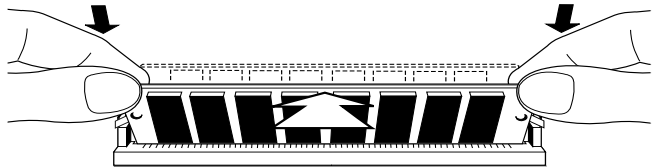
To install a SIMM

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



Note:

The SIMM is not symmetrical. There are small notches in one end and also slightly off centre along the connection edge, as shown below. 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.

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 suitable anti-static packaging.

When you have finished refit and secure the LPX system cage.

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 system BIOS, but you will have to confirm to the BIOS that the change it has detected is correct. See Appendix B, “*System BIOS and Setup*”.

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 cache memory

An *external* or *secondary level (L2) cache* is a small amount of dedicated memory with significantly faster access times than the computer's system RAM. A controller ensures that it always contains a copy of the most recently accessed areas of RAM, so that the processor is able to read it quickly.

In this system a maximum of 64 Mb of RAM is cached.

First-level (L1) cache is contained within the processor itself, and is not accessible. It could be either 8 Kb or 16 Kb.

You can improve the performance of some software applications by adding or upgrading the L2 cache memory.

To decide if an upgrade is possible:

- You will need to enter 'Setup' to find out how much cache memory the computer already has.
- Check with your supplier to find out what upgrade kits are available.

To fit cache memory

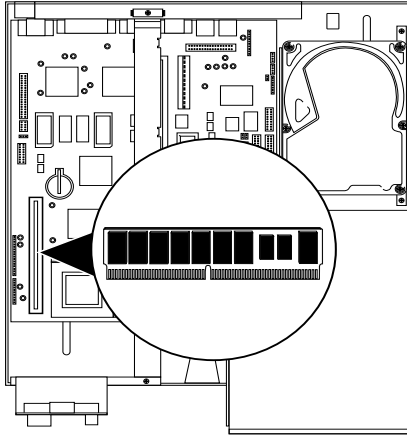
1. Turn off the computer and unplug the power cord.
2. Take suitable anti-static precautions and pull out the LPX system cage.

Caution

If you are unfamiliar with the recommended anti-static precautions and/or the process of pulling out the LPX system cage, refer to Appendix A, "Inside the System Unit".

3. Identify the cache memory socket see Appendix A, "Inside the System Unit".
4. To fit or remove a module in the cache socket, you may have to remove any expansion cards that are in the way. (Take note of which way all 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.
5. Remove the existing cache memory SIMM module (if fitted) by carefully lifting by the edges. It is a tight fit.

6. Fit the new cache memory SIMM module by aligning the module with the slot and carefully pressing home. It will only fit in one way; remember it is a fairly tight fit.



7. If necessary, replace any expansion cards you removed earlier and reconnect all cables, etc.
8. Refit and secure the LPX system cage, reconnect the system and switch on.
9. To check whether the new value of cache memory has been registered by the system you need to enter 'Setup'.

Adding more video memory

Video memory is memory reserved for use by the on-board EVGA controller. More video memory provides more colours and/or higher resolutions.

If your computer has only 1 Mbyte of video memory, you can upgrade it to 2 Mbytes on board.

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.

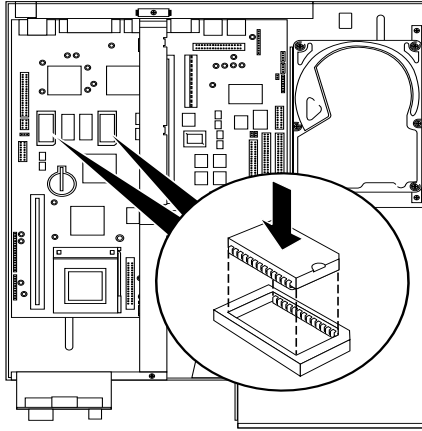
To add video memory

1. Turn off the computer and unplug the power cord.
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 LPX system cage, 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. Identify the two video memory upgrade sockets, see Appendix A, "Inside the System Unit".
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.**



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. Then switch on and check your system.

Remember, no immediate on-screen changes will be apparent, unless there is a fault with the upgrade chips just fitted. Running the video driver set-up software will highlight extra capabilities.

Upgrading the hard disk drive

The computer's 3.5" hard disk drive bay can accommodate one 1" high hard disk drive. If you feel that you need a high capacity hard disk drive then you will need to purchase one and replace it with the one currently fitted in your system.

Note

You will need to re-install all the software onto the hard disk. Any programs or documents which you have created will need to be saved on floppy disks and then saved on the 'upgrade' hard disk if you require access to them from the hard drive.

Installing the drive

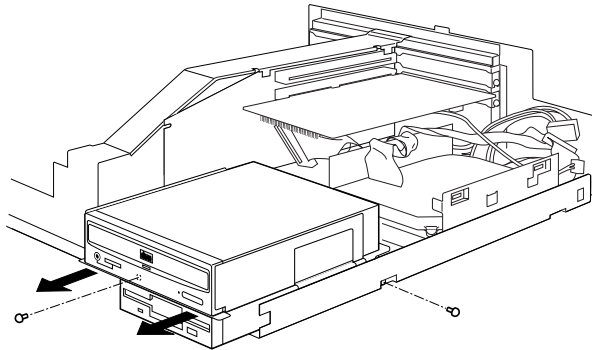
To install the hard disk drive :

1. Turn off the computer and unplug the power cord.
2. If there is a diskette in the diskette drive, remove it.
3. Take suitable anti-static precautions and pull out the LPX system cage.

Caution

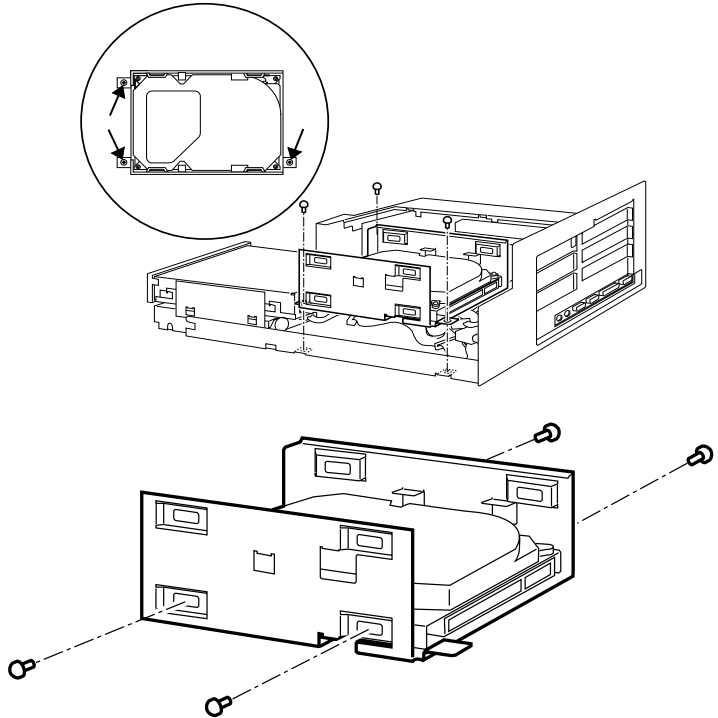
If you are unfamiliar with the recommended anti-static precautions and/or the process of removing the LPX system cage, refer to Appendix A, "Inside the System Unit".

4. Unplug the power and signal cables from the rear of the CD-ROM and floppy drives.
5. Remove the two side screws which secure the CD-ROM and floppy drives in place, (as shown below) and put them safely aside. Slide the tray forward and lift it out of the system cage. Put it down on a flat anti-static surface.



6. Unplug the power and signal cables of the current hard disk from the rear of the drive.

7. The hard disk drive bay is secured by three screws. Identify these using the illustration shown below. Unscrew these screws to remove the drive bay with hard drive from the system unit.



8. Unscrew the four screws which secure the hard disk drive into the bay, as shown above.
9. Slide out the hard disk drive from the drive bay and place it on an anti-static surface.
10. Place the upgrade hard disk into the drive bay and secure it with the four screws.
11. Place the hard disk drive and bay 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. Re-fit the CD-ROM and floppy drives into the system cage and reconnect the power and signal cables for both.
14. Refit the LPX system cage.

Upgrading the processor

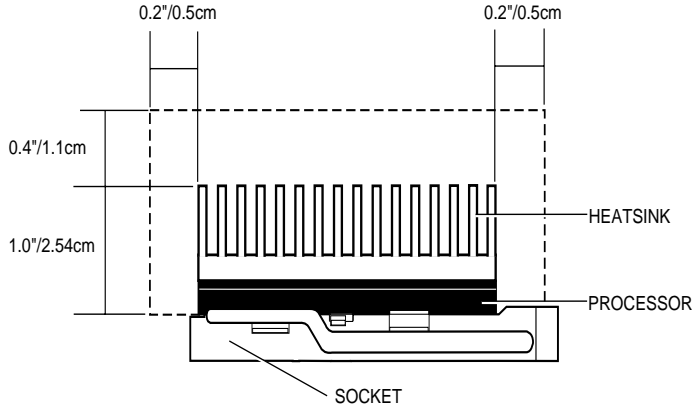
The computer is supplied with a Pentium processor. The ZIF (zero insertion force) processor socket on the motherboard is designed to accept a variety of Intel processors.

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 some 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:



Warning

If you install a high power Pentium Overdrive and you have five expansion cards fitted then you will probably have to remove some of the expansion cards. This is due to high power consumption of the cards and OverDrive processor which may cause problems that the system cannot cope with.

Removing and fitting a processor

To remove the existing processor:

1. Turn off the computer and unplug all power cables.
2. Take suitable anti-static precautions and pull out the LPX system cage.

Warning

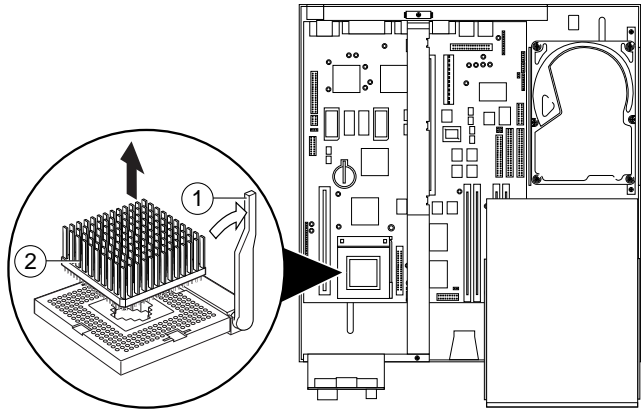
If you are unfamiliar with the recommended anti-static precautions or the procedure for pulling out the LPX system cage, refer to Appendix A, "Inside the System Unit".

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. To locate the ZIF processor socket, refer to Appendix A, "Inside the system unit". The lever attached to the socket secures the processor in the socket.



4. Lift this lever [1] 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.
5. Lift the processor [2] 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.

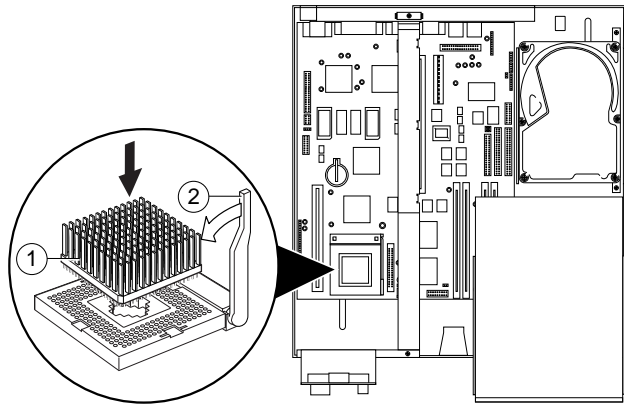
Caution

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

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 [1], 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 all four rows of holes in the socket it should be positioned centrally (as shown on the previous page).

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.

5. Move the securing lever in the locked position. Apply just enough pressure to overcome the resistance offered by the lever.
6. You may need to adjust the Processor Selection and/ or External Clock Speed jumpers on the motherboard.

See Appendix A, “*Inside the System Unit*”, for more information about locating and adjusting motherboard jumper settings.

7. Refit the LPX system cage.

6

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 pull out the LPX cage and disconnect the power and audio cables. Information on the motherboard jumpers is also provided.

Warning

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

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

- A graphics/movie card can provide more specialised video functions.
- A modem card can provide a connection to the Internet or a bulletin board via telephone line.
- A television card can enable you to watch T.V. on your monitor and capture individual frames.
- A radio card enables you to receive radio signals and tune into your favourite radio station.

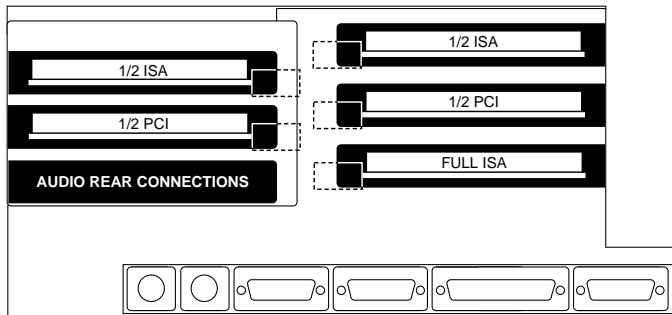
This computer system has room for:

One: full length Industry Standard Architecture (ISA) slot

Two: half length ISA slots

Two: half length Peripheral Component Interface (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 simplicity of showing the layout).



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. To configure, you assign values to various settings on the card, which enable the card to communicate with the computer. These **must** be *registered* in the BIOS see Appendix B, “*System BIOS and Setup*” and the section ‘*ISA Legacy resources*’.

Many cards require that you 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
IRQ9		Yes
IRQ10		Yes
IRQ11		Yes
IRQ12	Mouse	No
IRQ13	Coprocessor	No
IRQ14	Primary ATA/IDE interface	No
IRQ15	Secondary ATA/IDE interface	No

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

Note:

If you disable IRQ3 then you will also disable the IR sensor used for the infra-red remote control.

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. See the notes below the table for further explanation.

DMA	Default assignment	Available?
DMA0		Yes
DMA1	8-bit Audio	Optionally
DMA2	Diskette/floppy disk controller	No
DMA3	Enhanced Capabilities Port (default)	Optionally
DMA4	System	No
DMA5	16-bit Audio	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
022h-023h	ALI configuration port
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
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

I/O ports	Default assignment
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:

4 Kbytes = 1000h	8 Kbytes = 2000h	16 Kbytes = 4000h
32 Kbytes = 8000h	64 Kbytes = 10000h	128 Kbytes = 20000h

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.

Installing the card

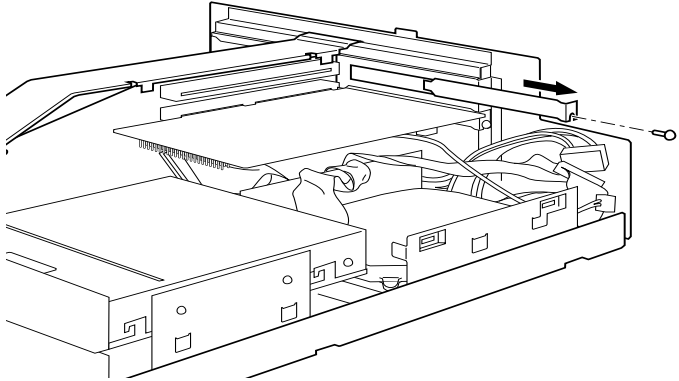
Installing expansion cards can be one of the most difficult operations you may ever perform within your computer. If you are in any doubt, or come into difficulties you are unable to resolve, contact the supplier of the expansion card or ask your Apricot dealer for advice or assistance.

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 pulling out the LPX system cage, 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. Opposite the blanking plates, at the front of the system unit, there are card guides. These ensure that the front edge of a full-length card is supported securely.
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. Keep all the screws, etc., they will be needed later to secure the card.

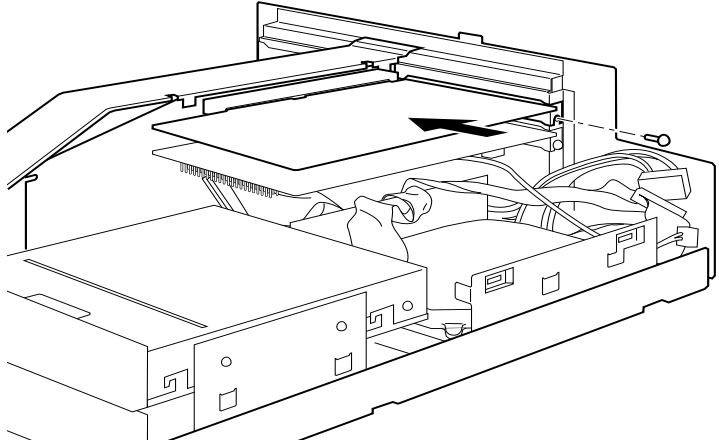


6. If the card you are installing is configured by the means of jumpers or switches, check that it is correctly configured before proceeding.

Note

If the card uses the video feature connector 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).

8. 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.
9. 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.



10. Secure the card by replacing all the screws/clamps that you removed in Step 5.
11. Connect any necessary signal cables to the card.
12. Check to ensure no other cables or connectors have become dislodged and replace the system unit cover.
13. Read the manuals supplied with the card and follow any other installation requirements, such as software etc.

7

MAINTAINING AND TRANSPORTING

This chapter provides information on how to care for your computer. 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 the power cord before cleaning or moving the computer.

Cleaning the computer

Make sure that the system unit is turned off and all power cords are disconnected before you attempt to clean or move the computer. If you have any problem which can not be resolved by cleaning then consult Chapter 8, “*Troubleshooting*”.

The system unit

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

- Occasionally wipe the system unit with a soft, slightly damp, lint-free cloth.
- Occasionally wipe the air vents on the rear and sides of the system unit. Dust and fluff can block the vents and limit the airflow.
- 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 a 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:

1. If the liquid is viscous, unplug the keyboard and call your supplier or an authorised maintainer.
2. If the liquid is thin and clear, try unplugging the keyboard, turning it upside down to let the liquid drain out, and drying it for at least 24 hours at room temperature. If the keyboard still won't 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

Warning

Turn off the computer and unplug the power cord before moving the computer. Be careful when attempting to move the computer - it weighs around 40kg.

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 tape or 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, including network cables, still attached.

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

If you intend to use the computer in another country, see the next section for some important advice.

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.

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

AC power cord

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. For further details, see the "Safety and Regulatory Notices" section at the start of this handbook.

8

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 with the correct fuse fitted for operation within the UK. If the fuse in the system unit's AC plug blows when you turn it on, this may be caused by an AC power surge, but is more likely a symptom of problems with the computer or its peripherals. Follow these steps:

1. Turn off the computer and unplug the power cord.
2. Look for any obvious cause of the fault. If none is apparent, replace the blown fuse with one of the same rating, reconnect the system power cord and try to turn it on again.
3. If the replacement fuse blows, call your supplier or maintenance provider.
4. 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 switched on, the 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 replaced a SIMM). In this case you may be diverted directly into the BIOS Setup. If POST detects a hardware fault, one or more error messages may be displayed. A full list of these is given at the end of Appendix B, "*System BIOS and Setup*".

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.

The computer may be able to continue despite the error indication (for example, if a memory chip fails POST, the computer can sometimes continue with less memory).

If after checking the BIOS settings you are unable to clear the hardware problem call your supplier or authorised maintainer.

Failure to boot

The computer attempts to boot from a system diskette or bootable HDD partition.

Failure to boot correctly may result in an error message, most of which will be from the BIOS. One other may be:

Non system disk or disk error. Replace and strike any key when ready.

There may be a floppy disk in the drive which is not a bootable floppy, in which case remove it, or replace it with one that is. If the message persists there may be a fault with the HDD, in which case, check the BIOS settings are correct. If they are then the HDD may need to be reformatted and the system software restored.

Restoring the software

In the event of a complete disaster the original software can be restored by means of the special sealed pack supplied with the system. Full instructions are supplied with this CD and floppy disk.

It should not need to be used other than for a system restore, unless you are dramatically changing your system settings, printer, etc.

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 the 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 correct port.

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 brightness and contrast controls are not turned to minimum.

Expansion cards

If an expansion card does not work, check that all internal cables are securely connected, that the card is configured correctly and does not 'conflict' with another card or motherboard component. Check also that the software that controls or uses the card is correctly configured. Check in Chapter 6, "*Expansion Cards*" for information on, for example IRQ's 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.

Remote control

First of all check the batteries. The LED on the remote control should illuminate to red when any of the remote keys are pressed. Try the batteries in a torch or something similar, replace them if necessary. Check also that the front window is not obscured on

either the system unit or the handset. Periodic cleaning with a soft lint-free cloth is advised.

System BIOS

Check finally the system BIOS to ensure that it has not been disturbed from the original settings. If the settings appear to have altered, there may be a fault with the BIOS battery. See Appendix A, *“Inside the System Unit”* and Appendix B, *“System BIOS and Setup”*.

The system’s disk drives

Refer also to Chapter 3, *“Using the System Drives”*.

Floppy disk drive

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

CD-ROM drive

If you have problems accessing a CD, check that you have allowed a few seconds for the disk to spin up to full speed, that the disk is the correct way up in the drive and that it is a data CD. Remember that you cannot save your data onto a CD with a conventional CD drive and disk.

Hard disk drive

If you encounter problems accessing the hard disk drive, check that the power and signal cables have been connected correctly. Check also, that the permission assigned by the BIOS or the software which you are using allows 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 enclosed 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 the power cord before attempting to pull out the LPX system cage.

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 LPX system cage is out, 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 pulling out the LPX system cage 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.

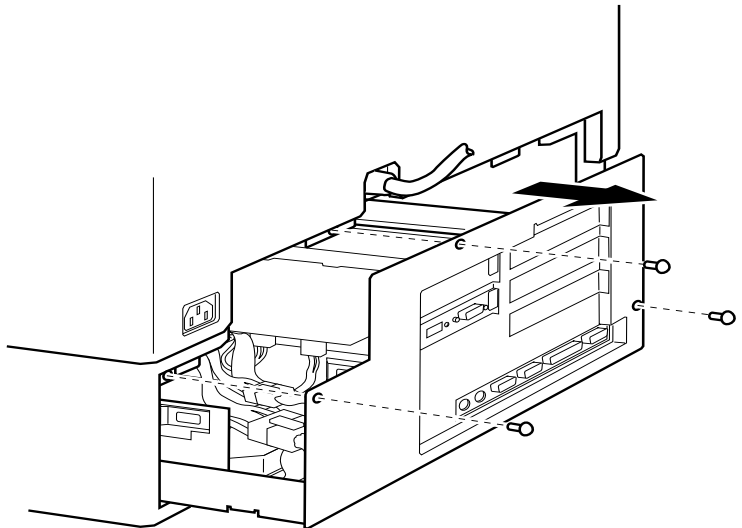
- When installing any upgrade, be sure you understand what the installation procedure involves before you start. This will enable you to plan your work, and so minimise the amount of time that sensitive components are exposed.
- Do not pull out the LPX system cage, nor the anti-static bag or wrapping 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, foodstuffs and especially liquids, away from your work area and the open computer.

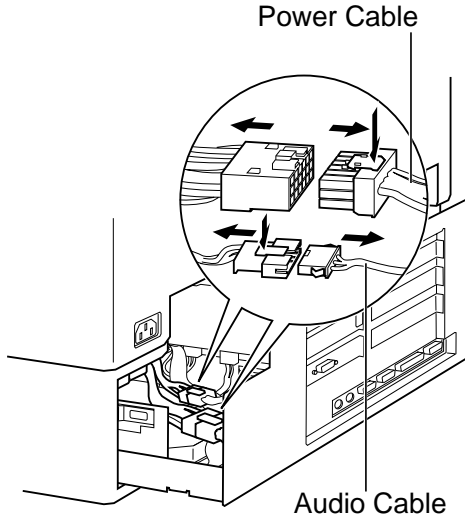
Opening the system unit

To pull out the LPX system cage:

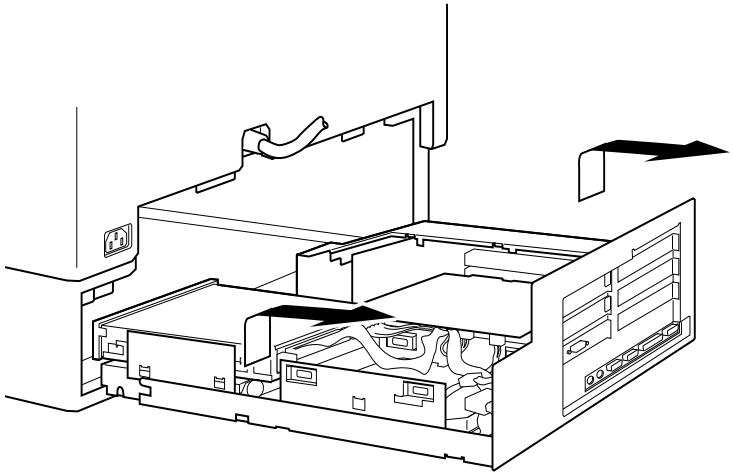
1. Turn off the system unit.
2. Set the AC power outlet switch to its Off position.
3. Unplug the power cord from the rear of the system unit.
4. Unscrew the three screws (shown below), and put them *safely* to one side.



5. Pull out the LPX cage so as to disconnect the two internal cables.



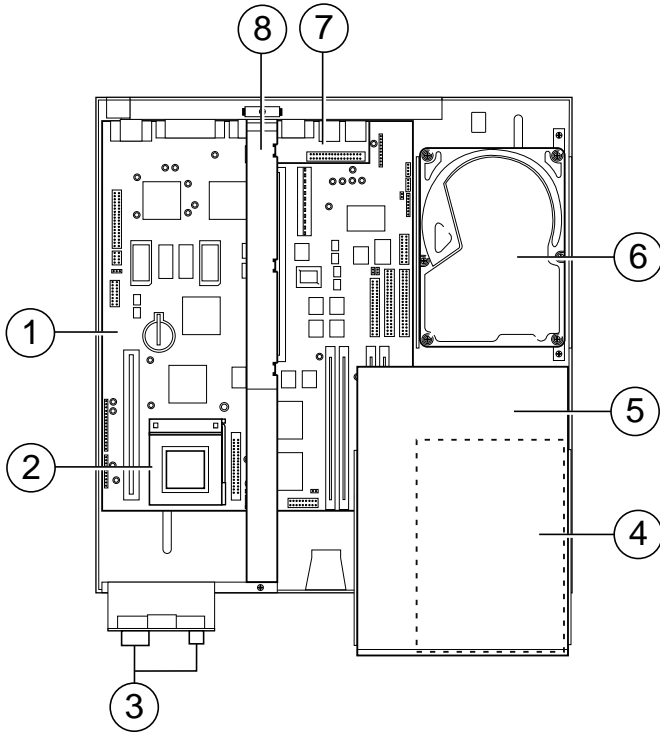
6. Gently pull out the remaining LPX cage.



Note:

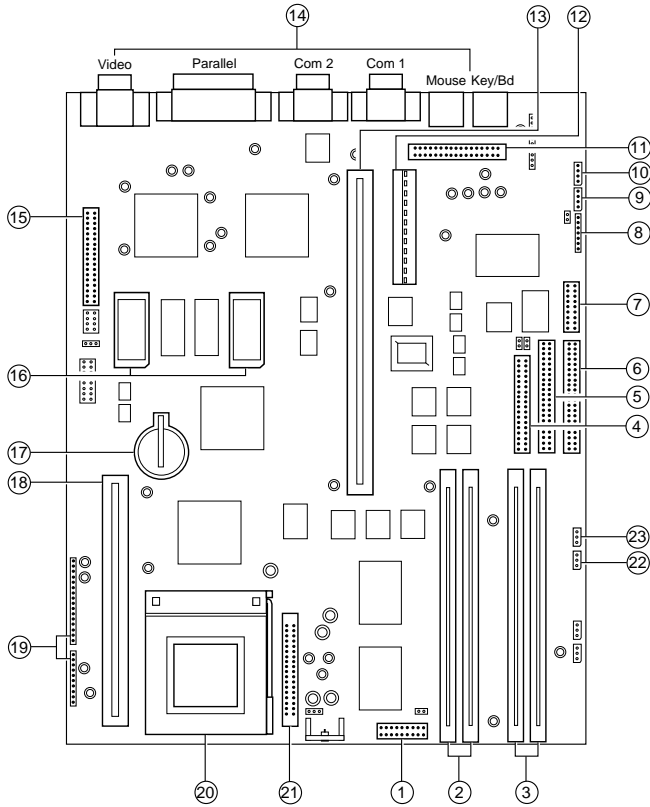
Remember to re-connect the two internal cables before re-fitting the LPX cage.

The components inside your computer



- 1 System main board, for details see '*Board Layout*'.
- 2 System Processor
- 3 'Standby/Restore' switch and LEDs.
- 4 Floppy disk drive, see Chapter 3 '*Using the System Drives*'.
- 5 CD-ROM drive, see Chapter 3 '*Using the System Drives*'.
- 6 Hard disk drive, see Chapter 3 '*Using the System Drives*'.
- 7 Rear audio sub-board.
- 8 Riser board, see Chapter 6 '*Expansion Cards*'.

Board layout



- | | | | |
|----|----------------------------------|----|--------------------------|
| 1 | Front audio connection | 13 | Riser board socket |
| 2 | SIMMs sockets 0, 1 | 14 | External ports |
| 3 | SIMMs sockets 2, 3 (unavailable) | 15 | Video feature connection |
| 4 | Floppy ribbon connector | 16 | Video upgrade sockets |
| 5 | CD ribbon connector | 17 | CMOS Battery |
| 6 | HDD ribbon connector | 18 | Cache memory socket |
| 7 | Wave table connection | 19 | System connections |
| 8 | Modem audio connector | 20 | Processor ZIFF socket |
| 9 | TV audio connector | 21 | Power module |
| 10 | CD audio connector | 22 | BIOS jumper PL5 |
| 11 | Rear audio connection | 23 | BIOS jumper PL6 |
| 12 | Power connections | | |

Jumper configurations

There are very few jumpers that will ever need changing, most of them have been factory set for your system and its needs, but for information the details are given here. Use the board layout view (on the previous page) to identify the jumpers (detailed below). Some of the jumpers may be hidden under the CD-ROM and floppy drive and will therefore need to be removed in order to get to the jumper switches. Refer to Chapter 5, “System Upgrades”, which details instructions on how to remove the CD-ROM and floppy drives.

Internal ‘audio’ modem

PL4 Just along from the CD audio connection, default position if no internal modem is fitted, link pins 3 and 4. Remove only when fitting an internal modem supporting sound.

BIOS reprogramme

These links are for special purposes. Only to be used for an official upgrade to the system BIOS. **Do not** move for any other reason.

PL5 Normal link 1 and 2. This link is in the event of a disaster occurring during an upgrade to the system BIOS. Link moved to pins 2 and 3 will enable the system to be booted up from an internal backup of the BIOS held in a secure area in the system ROM.

PL6 Normal link 2 and 3, move to pins 1 and 2 to enable BIOS reprogramming (requires specialist software).

Floppy disk control mode

PL13 Next to floppy disk ribbon connector, default position link pins 3 and 4. To enable 3-mode operation of the drive (not usual in Europe), link 1 to 3, and 2 to 4.

Clear BIOS settings

PL21 Next to outer video upgrade socket, default position link pins 1 and 2. Moving the link to pins 2 and 3 disconnects the battery from the BIOS memory, and will cause all the

user settings to be lost. To be used with caution and *only* in the event of an access password being lost.

VESA option

A single jumper may be the only one fitted, at the end nearest PL21. This would normally be removed if fitting a higher feature ‘plug in’ video card. It may not cause any problem if this link is inadvertently left in during the upgrade but, if taken out, it *must* be replaced if the extra video card is subsequently removed.

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

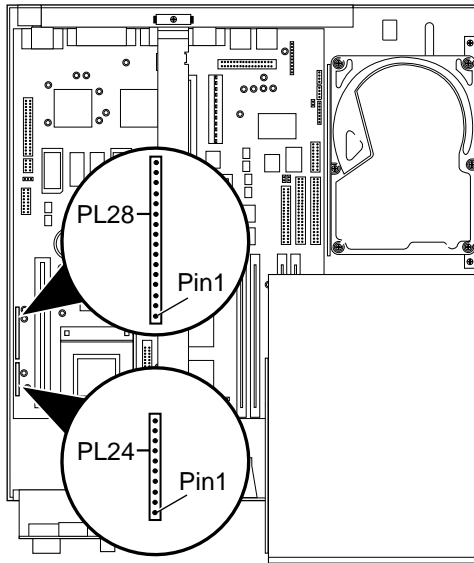
Do not alter these links under normal circumstances as it could lead to the destruction of the processor and/or other vital components on the board.

Processor Speed	PL1	SW1, = Link, • = No link	ISA (MHz)
Pentium 75	VRE	^{Pin 1} : : : : : : :	8.33
Pentium 90	VRE	^{Pin 1} • : : : : :	7.5
Pentium 100	VRE	^{Pin 1} : : : : : : :	8.33
Pentium 120	VRE	^{Pin 1} • : : : :	7.5
Pentium 133	VRE	^{Pin 1} : : : : :	8.33
Pentium 150	VRE	^{Pin 1} • : : :	7.5

Soundblaster address

IC12 Near CD audio connector. Default position, link rear pins, sets the on-board Soundblaster to address 220h. Removing the link changes the address to 240h.

PL24, PL28



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

PL24	Pins:	1 to 4	HDD active light
		5 to 9	Keylock (not fitted)
		10 & 11	System in 'power standby' light
		12 & 13	System hardware reset (not fitted)
PL28	Pins:	1 & 2	System standby restore switch
		3 to 7	Infra-red controller
		8,9,10	Fan, slow mode (not used)
		11,12,13	Fan, full speed mode (default)

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 pull out the LPX system cage. If you are unfamiliar with the recommended anti-static precautions and/or the process of pulling out the LPX system cage, refer to beginning of this Chapter for detailed instructions.
3. Identify the battery holder from the diagram of the motherboard.
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 LPX system cage.
11. Dispose of the old battery according to the makers 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*”.

B SYSTEM BIOS AND SETUP

When the system is switched on, the Power on Self Test (POST) does its job depending upon the information it finds in the BIOS and sets up the computer to boot into operation. You can access the BIOS and check or alter the configuration via its setup utility.

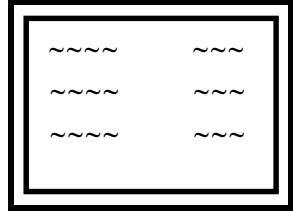
Caution

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

During, or just after, the POST, a small box appears in the top right corner of the screen. It looks like this:

While this is on the screen press **[F1]** on the keyboard, and in a few seconds you will be presented with the BIOS setup screen. This is the only way in which you can enter the setup utility.



Control keys



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.

F10

To restore the original default setting

Warning

F9 will not restore the date settings and pressing F10 may put in a default setting that could have been changed by our factory during production build and test. We recommend that you make a note of ALL of the settings before any changes are made.

If Setup runs on its own

This can happen for three reasons.

- There is a configuration error, or fault. In which case an error message may well appear. A list of these is given at the end of this chapter.
- The BIOS battery may be running down. In this case you may also get error messages. If it happens every time you boot up, you may have to change the motherboard battery. Instructions for this are given in Appendix A, “*Inside the System Unit*”.
- The system’s configuration may have been changed. More system memory, more cache memory, or an upgrade that uses ISA interrupts etc.

If you are unable to resolve any problem, do not alter too many settings, but make a note of them and any error messages that appeared on the screen and call your Apricot dealer or authorised maintainer.

Opening screen

On entering the setup utility a main menu screen appears. If there is an associated sub-menu, or a further sub-menu available, then the listed options have a preceding bullet, as shown below:

- System summary Information about the system.
Processor, memory, drives etc.
 - Devices and I/O ports The settings for serial, parallel ports,
IDE interfaces, HDD.
 - Date and time Change the system master clock
 - Security View or change access to HDD, user
and administrator passwords.
 - Start options Boot from A: or C:, keyboard speed,
POST speed etc.
 - Advanced setup Change the cache settings, ROM
shadowing and other related topics.
 - ISA Legacy resources Register resources used by new ISA
expansion cards, memory, DMA,
interrupts etc.
 - Power management Change settings for the Low power and
Standby energy saving modes.
- Save settings Saves any changes that have been made
- Restore settings Restores all the settings to the values
that were in force when you entered
setup, same as pressing **F9**
- Load default settings Restores the settings to their default
(possibly blank) state. CAUTION--
Some of the settings may have been
altered during factory build or test.
- Exit setup Ends the session and starts the system
POST again. You will be asked to save
any new settings.

Sub-menu pages

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.

Devices and I/O ports

Serial ports 1 & 2 (COM1 & COM2)

Selects the I/O ports and interrupts used by the two serial ports. Normally set to default settings. Do not disable the serial ports unless you are absolutely sure you are not going to need them.

Parallel port

This sets the I/O port and interrupt used by the parallel port. You can select standard, or extended port modes. To obtain the extended port modes it will be necessary to change the I/O setting.

Standard mode		Output only.
Extended mode	Bi-directional	Simple two way data.
	EPP	Enhanced parallel port compatible operation.
	ECP	Extended capabilities port operation.

Any parallel port devices that you may wish to attach, such as a tape streamer or external hard drive etc., will 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 tells the system that a mouse is connected to the mouse port. The mouse is then detected by the POST. You should not normally change this setting.

Floppy disk drives

This is available purely to change the mode of the floppy drive. The drive supplied and fitted is a 3.5" 1.44 Mbyte. This setting, if changed, could prevent software access to the fitted drive.

Hard disk drive

Hard disk type is auto detected on switch on.

HDD 0 The system hard drives are normally attached to
HDD 1 the primary PCI IDE interface. The system is
 supplied with a master HDD (HDD 0)

Selecting either of the **HDD** will put you into a further sub-menu where their settings can be changed;

Performance Select either **Compatible** or **High performance**
 Default setting: High performance.

Transmission Select either **Extended** or **Standard**
Mode Default setting: Extended

CD-ROM drive

CDROM 2 The CD-ROM drives are included in this section
CDROM 3 as most new types are controlled from the
 secondary IDE interface

Selecting either of the **CDROM** will put you into their sub-menu where the changeable setting for these drives is for;

Performance Select either **Compatible** and **High performance**
 Default setting: Compatible

Date and Time

This is to enable a change to the Real Time Clock (RTC) on the system motherboard. This RTC is normally maintained by the motherboard battery when the system is switched off.

System time

Using the left and right arrow keys to move around, you then use either the number keys to insert new figures or the + and - keys to increase/decrease the existing number. The time is in 24 hour format.

System date

The procedure is the same as setting the time, the date being in UK format of *Day / Month / Year*, e.g. 1st August 95 = 01 / 08 / 1995

System security

This is to allow you to set, change or delete a set of passwords for either user or administrator, plus control access independently to HDD and floppy drives.

Caution

This menu can have interaction with the START OPTIONS menu. You must ensure that a user has access to a STARTUP DEVICE, or the user could be denied access to the system completely.

User password

If a user password is enabled, the correct password must be entered every time the system is switched on or re-booted. If you select this option a sub-menu appears:

Enter User Password	Type in your password, use numbers and letters only.
Enter Password Again	Re-type it as above.
Set Or Change	Select this to accept the password for all future sessions.

If you have not changed or entered a password before selecting 'Set Or Change', a box will appear asking you to press ENTER to confirm deletion of the existing password, effectively choosing 'no password'. If you make any mistakes, press 'Esc' to return to the main menu and start again.

Delete User password

Use this to clear or remove the existing password, without replacing it with a new one. You may be asked for confirmation or to enter the old password.

Warning

Remember your passwords, But do not write them down on a piece of paper and leave it in your desk drawer, or pin it on your wall!

Password prompt

The system can be set to 'ask' for the password on switch on or re-boot. You may not wish to have a prompt for security reasons, but the user is still required to enter a password.

Administrator Password

This allows the setting of a supervisory password and to choose whether a user can change their individual password. This administrator password will be required in order to enter the BIOS Setup. If the user password is entered instead, there is only access to the System Summary and (if enabled) access to setting the User Password of System Security.

The procedure is generally the same as for the User Password, with the addition of **User Password changeable by User**. Select either Yes or No for this feature.

Start Options

Certain features can be set or enabled for system boot up.

Keyboard Numlock **(The default Is ON)**

If ON, the keyboard number lock is enabled when the system boots and the right hand section of the keyboard is numbers only.

Keyboard speed **(The default is FAST)**

This sets the speed at which a pressed key will repeat.

Disketteless Operation

If this option is Disabled, POST will report a fault or any absence of the floppy drive and halt the boot process. If Enabled, POST will bypass the floppy test and continue, providing another boot device is available e.g. HDD.

Displayless Operation

If this option is Disabled, POST will halt on any absence of a monitor, Enabled, will allow the system to start without a monitor e.g. when used as a small fileserver.

Keyboardless Operation

Similar principle to the above.

Start-up Devices

This allows the choice of sequence that the BIOS uses to look for a 'boot', drive. The default sequence is:

Diskette drive 0; Hard disk 0 (i.e. A: then C:)

It should not need to be changed for normal operation.

Power On Self Test **(The default is ENHANCED)**

The POST can be selected to either run only a short set of tests (**Quick**) or a full test (**Enhanced**).

Virus Detection

When Enabled, the BIOS will perform a checksum operation on the boot sector to find if a 'boot virus' has crept in. It is *not* an infallible check against the newer types of virus, but it may help.

Advanced Setup

Any settings changed here, if incorrect, may cause the system to halt or may cause your software to malfunction. A warning to this effect appears on the screen as you enter this item from the menu.

Cache Control

A simple two line screen allows you to either enable or disable the L2 cache memory (external to the processor).

The default setting is **Enabled**, and should not normally be changed. Some of the older software is however, speed sensitive and on rare occasions you may need to disable the L2 cache.

Cache Size

This value also appears in the System Summary. It is detected by the POST and the value is not editable.

ROM Shadowing

The contents of the Read Only Memory are copied into the faster Random Access Memory during start-up. Choosing this option displays a sub-menu showing a split up table of the memory address range, with the range sectioned into 32K blocks. Some areas are greyed out as they are already in use by parts of the system.

Changes should only be made to the supplied settings when fitting a new expansion board, if asked to do so, and then with great care, using the information supplied with the particular card.

ISA Legacy Resources

When expanding your system with an ISA card this menu section is used to 'register' the system resources that the card uses. This needs to be done as the system cannot auto-detect their being in use, but must be told about them so as to auto-configure any PCI or ISA Plug and Play cards and avoid conflicts. There is a menu for each topic.

The resources affected are; Memory, I/O port addresses, DMA channels, System 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.

Power Management

NOTE

Read also the information in the Help topics within the Apricot Power Management program in Windows before attempting any changes.

The adjustable settings available here will be dependent upon your system configuration. We recommend to make the adjustments to events and timings within the Apricot software in Windows. That will allow use of the Media Manager software to pre-program restore events and operations.

If timings etc., are available for editing, they will have been pre-set in our factory to ensure compliance with the Energy Star Programme, but timing changes, or disabling the features, are both straightforward, either in the software or the BIOS.

Energy Saving is initially set as a two stage operation. First there is a 'Low Power' mode. The monitor will blank, plus certain components inside the system will slow down or stop. The system is restarted by events, such as mouse or keyboard activity, **NOT** by pressing the standby button.

Second stage is 'Standby', where the monitor is in a controlled 'off' state, the processor halts, the HDD will spin down, the fans may stop and the whole system enters a state where it will typically be consuming less than 20W. The system is restarted by pressing the 'standby' button on the system front panel.

Depending upon the system's configuration, certain events will trigger 'intermediate' states, e.g. e-mail will start up the appropriate sections of the system, deal with the message, then return to standby.

Error Messages

The following table lists errors which will be detected by the POST routine. The possible cause is listed with the error code. If you get an error which is not listed and the problem persists, call your supplier or authorised maintainer.

Code	Cause	Code	Cause
101	Timer tick interrupt failure	301	Keyboard clock line failure
102	Timer 2 test failure	301	Keyboard data line failure
106	Diskette controller failure	301	Keyboard stuck key failure
110	Systemboard memory parity interrupt	604	Diskette drive 0 failure
114	Option ROM checksum failure	604	Diskette drive 1 failure
151	Real time clock failure	605	Diskette unlocked problem
161	Real time clock battery failure	662	Diskette drive configuration
162	CMOS RAM checksum failure	762	Coprocessor configuration
162	Invalid configuration information	1762	Hard disk configuration
163	Time of day not set -preboot	1780	Fixed disk 0 failure
164	Memory size does not match CMOS	1781	Fixed disk 1 failure
175	Bad EEPROM CRC #1	1782	Fixed disk 2 failure
176	System tampered	1783	Fixed disk 3 failure
177	Bad PAP checksum	1800	No more IRQ available
178	EEPROM is not functional	1801	No more room for option ROM
183	PAP update required	1802	No more I/O space available
184	Bad POP checksum	1803	No more memory <1Mb available
185	Corrupted Boot sequence	1804	No more memory >1MB available
186	Hardware problem	1805	Checksum error or 0 size option ROM
189	Excessive password attempts	1962	No bootable device
201	Base memory error	2400	Display adapter failed; using alternate
229	External cache failure	2462	Video configuration

C TECHNICAL INFORMATION

This appendix provides some technical information about the computer. More detailed information can be obtained from your supplier.

Specifications

General

<i>Processor</i>	Type Bus speeds	Intel Pentium 75MHz upwards 50, 60, 66 Mhz
<i>Chipset</i>		Intel Triton
<i>BIOS ROM</i>	Surepath 1.3	1 Mb Flash programmable.
<i>Memory</i>	Simms	32-bit, parity not required, (One pair of SIMM sockets obstructed by CD-ROM drive therefore only one pair available, limiting memory expansion to a maximum of 64 Mb).
<i>Video</i>	Chipset Video RAM Resolutions	Cirrus Logic CL-GD543x/PCI local bus 1 Mb onboard upgradeable to 2 Mb EVGA 1280 x 1024 EVGA 1024 x 768 SVGA 800 x 600 VGA 640 x 480
<i>Cache</i>	Modules	(L2) Write-back, pipeline burst or async 256 Kb or 512 Kb modules with integral Tag RAMs.
<i>Audio</i>	On board	Creative Labs 16 Bit Yamaha OPL3 synthesiser.
<i>I/O ports</i>	Serial Parallel	Two 9-way male D-Type RS-232 (Will be used by the IR sensor for the remote). 25-way female D-type. EPP/ECP compatible.
<i>Keyboard</i>		102 key AT-compatible
<i>Mouse</i>		PS/2-compatible two-button
<i>Hard disk interface</i>		Dual AT-Attachment/Enhanced IDE
<i>Hard disk drive bay</i>	Capacity	One 1.6" drive (Limitation of fitting one hard disk only to system).
<i>Expansion</i>	Riser board ISA PCI	The riser board fitted supports the expansion of 5 cards: one full length and two half length two half length

Floppy disk drive (Mitsubishi MF355F)

<i>Power</i>	Connector	4 pin miniature
	Loading	1.5W during read/write 100mW during standby (400ms start time)
<i>Disk formats</i>	(3 Mode)	DS-DD 720 Kb, 1.2 Mb (NEC, Japan), HD 1.44 Mb
<i>Reliability</i>	MTBF	Estimate, 80.000 hours

ATA-API CD-ROM drive (Sony CDU77E)

<i>Discs</i>	Acceptable discs	CD-ROM mode 1 data discs CD-ROM mode 2 data discs CD audio discs Audio-combined CD-ROM Multisession Photo CD
	Disc diameter	12cm, 8cm
<i>Transfer rate</i>	Sustained	600 Kbyte/s (Mode 1) 682 Kbytes (Mode 2)
	Burst	4.0 Mbyte/s
<i>Speed</i>	Quadruple	600 Kb/s typical mode 1
	Access time	190 ms average 400 ms full stroke
<i>Audio output</i>	Line	0.75 V at 47 kOhm
	Headphones	0.55 V at 32 Ohm
<i>Host interface</i>		ATA-API
<i>Power specification</i>	Voltage	+5 V dc +5% +12 Vdc +10%
	Ripple	+5 V: 100 mVp-p +12V: 200 mVp-p
	Current (max)	+5 V: 1000 mA +12 V: 1500 mA
<i>Reliability</i>	MTBF	100,000 power -on hours
<i>Laser</i>	Type	GaAIAs semiconductor
	Wavelength	780 nm
	Output power	0.6 nW

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.

Physical Characteristics

Weight and dimensions

<i>Component</i>	<i>Height</i>	<i>Depth</i>	<i>Width</i>	<i>Weight</i>
System unit	425 mm	445 mm	430mm	40 Kg
Keyboard	40 mm	205 mm	488 mm	1.4 Kg

Warning

Be careful when lifting the system unit as it weighs approximately 40Kg with its various components inside.

Temperature and Humidity ranges

<i>Range</i>	<i>Temperature</i>	<i>Relative humidity with no condensation</i>
Storage/Transport	-5 to +45°C	10% to 90%
Operational	+5 to +35°C	30% to 80%

Voltage range

<i>Setting</i>	<i>AC Voltage</i>	<i>Frequency</i>
230V	220 to 240V	50 to 60 Hz

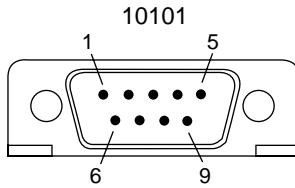
Warning

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 .

Port Characteristics

Serial port

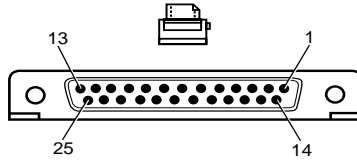
9-way male D-type (COM1/COM2)



Pin	I/O	Function
1	I	Data carrier detect
2	I	Receive data
3	O	Transmit data
4	O	Data terminal ready
5	-	Signal ground
6	I	Data set ready
7	O	Request to send
8	I	Clear to send
9	I	Ring indicate

Parallel port

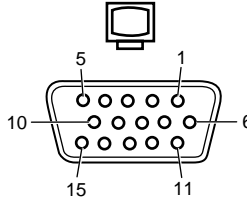
25-way female D-type



Pin	I/O	Function
1	I/O	- STROBE
2	I/O	Data bit 0
3	I/O	Data bit 1
4	I/O	Data bit 2
5	I/O	Data bit 3
6	I/O	Data bit 4
7	I/O	Data bit 5
8	I/O	Data bit 6
9	I/O	Data bit 7
10	I	- ACK
11	I	BUSY
12	I	PE
13	I	SLCT
14	O	- AUTO FEED
15	I	- ERROR
16	O	- INIT
17	O	- SLCT IN
18	-	Ground
19	-	Ground
20	-	Ground
21	-	Ground
22	-	Ground
23	-	Ground
24	-	Ground
25	-	Ground

Monitor port

15-way female D-type (VGA)



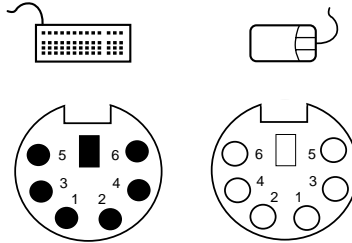
Pin	I/O	Output	Monochrome	Colour
1	O	Red	No pin	Red
2	O	Green	Mono	Green
3	O	Blue	No pin	Blue
4	-	Reserved	No pin	No pin
5	-	Digital G	Self test	Self test
6	-	Red Rtn	Key pin	Red Rtn
7	-	Green Rtn	Mono Rtn	Green Rtn
8	-	Blue Rtn	No pin	Blue Rtn
9	-	Plug	No pin	No pin
10	-	Digital G	Digital G	Digital G
11	-	Reserved	No pin	Digital G
12	-	Reserved	Digital G	DDC Data
13	O	Hsync	Hsync	Hsync
14	O	Vsync	Vsync	Vsync
15	-	Reserved	No pin	DDC Clock

Red Rtn, Green Rtn, Blue Rtn = Analog grounds

Digital G = Digital ground for sync returns and self test.

Keyboard and mouse port

6-pin miniature DIN connector




Pin	I/O	Function
1	I/O	Data
2	-	Reserved
3	-	Ground
4	-	+ 5 Vdc
5	I/O	Clock
6	-	Reserved

The voltages and signals are the same for both connectors. Although the keyboard and mouse ports are physically and electrically compatible, neither the keyboard nor the mouse will operate if plugged into the other's socket.



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apricot

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