Upgrading to multimedia

Kicking off a series of three computer classes on upgrading, Paul Wardley shows you how to install a CD-Rom drive and sound card into your PC

Gone are the days when multimedia was an option: these days practically all PCs come equipped for it as standard, and all the most interesting and useful software seems to assume that you have at least a CD-Rom drive, if not a sound card and speakers as well.
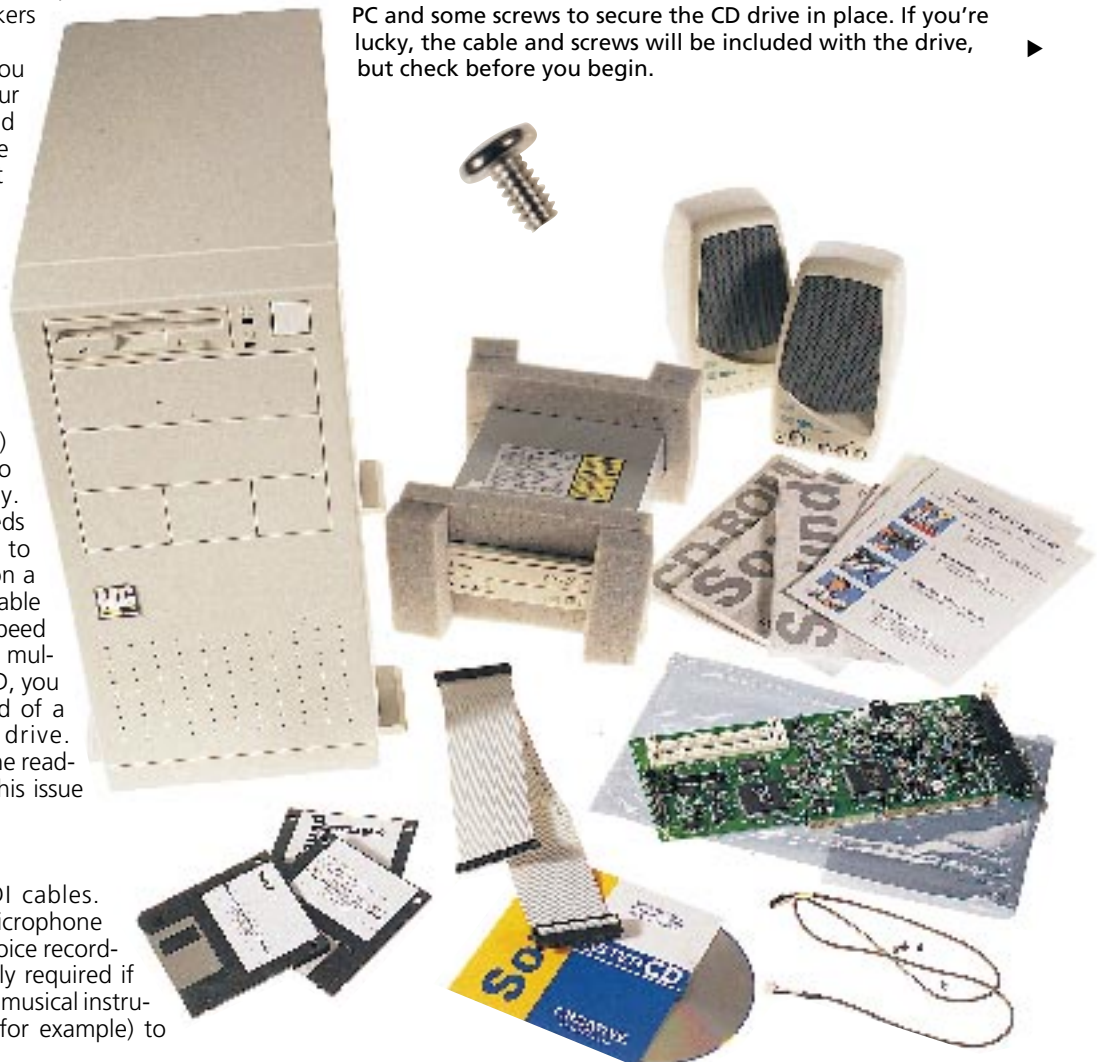
The good news is that you don't have to throw away your mute, hard disk-bound PC and buy another one just because it lacks a couple of easy-to-fit accessories. It has never been cheaper or easier to upgrade to multimedia.
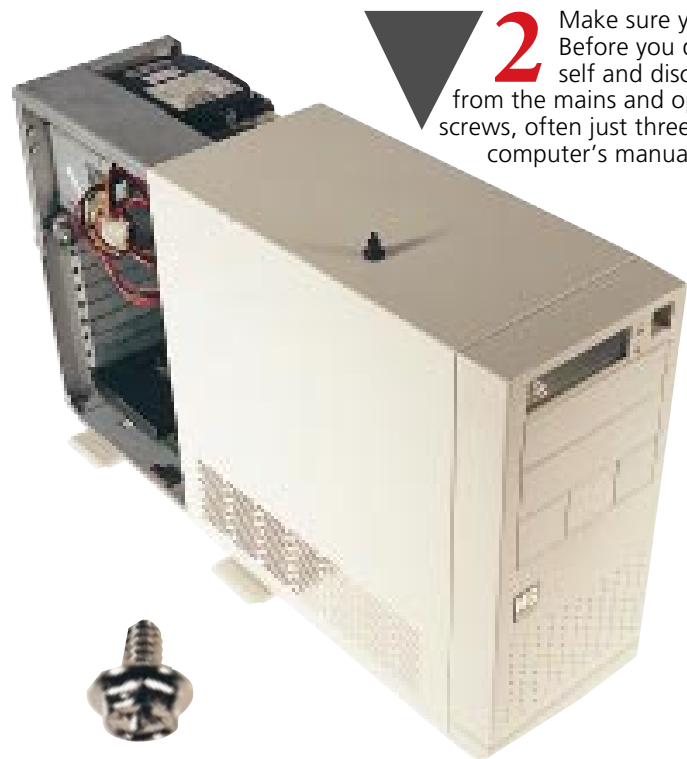
What do I need?
● A not-too-ancient PC
● A CD-Rom drive. In this class we look at how to install IDE (sometimes called Atapi) drives. These are the easiest to fit and the cheapest to buy. They come in a range of speeds and if you really just want to install software that comes on a CD-Rom, you might still be able to pick up an older double-speed drive for around £30. To run multimedia titles straight off a CD, you should pay more to get hold of a quad, six or eight-speed drive. There's a review of most of the readily available faster drives in this issue of *What PC?*.
● A sound card
● Speakers
● A microphone and MIDI cables. These are both optional: a microphone is useful to make your own voice recordings and MIDI cables are only required if you want to connect a digital musical instrument (such as a keyboard, for example) to your PC.
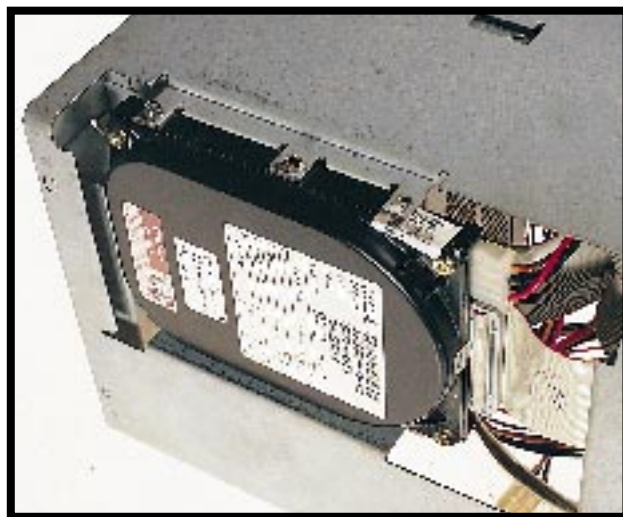
Step-by-step
1 Unwrap your upgrade components and assemble everything you need in one place. In addition to the CD drive, sound card, speakers and installation floppies you'll need a cross-point screwdriver, an IDE cable to make an internal connection between the CD drive and the PC and some screws to secure the CD drive in place. If you're lucky, the cable and screws will be included with the drive, but check before you begin.
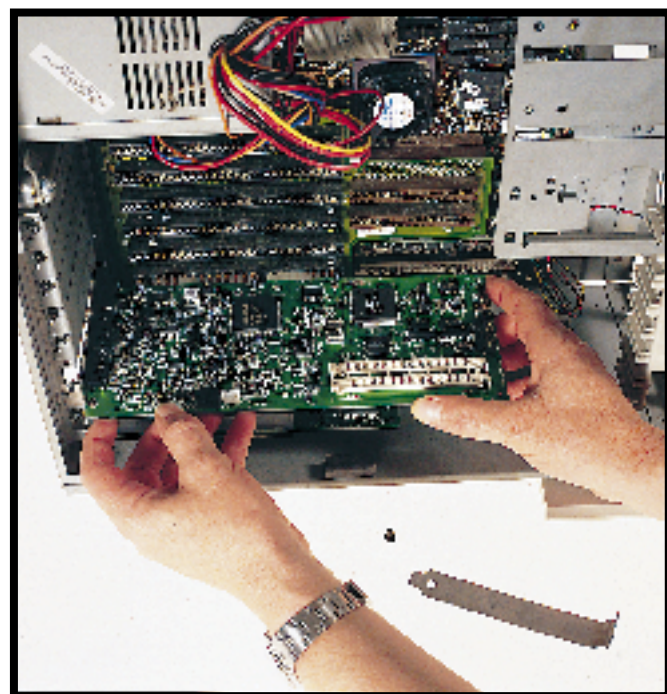
2 Make sure your PC is switched off but still connected to the mains. Before you do anything else, touch a metal part of your PC to earth yourself and discharge any static electricity. Now you can disconnect your PC from the mains and open up the case. Most are held together with surprisingly few screws, often just three or four, but if you're not sure which to unscrew refer to the computer's manual for explicit instructions.
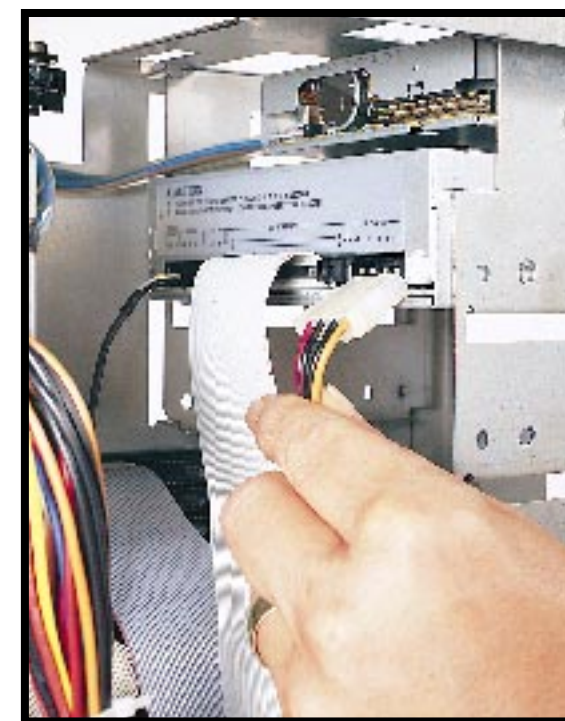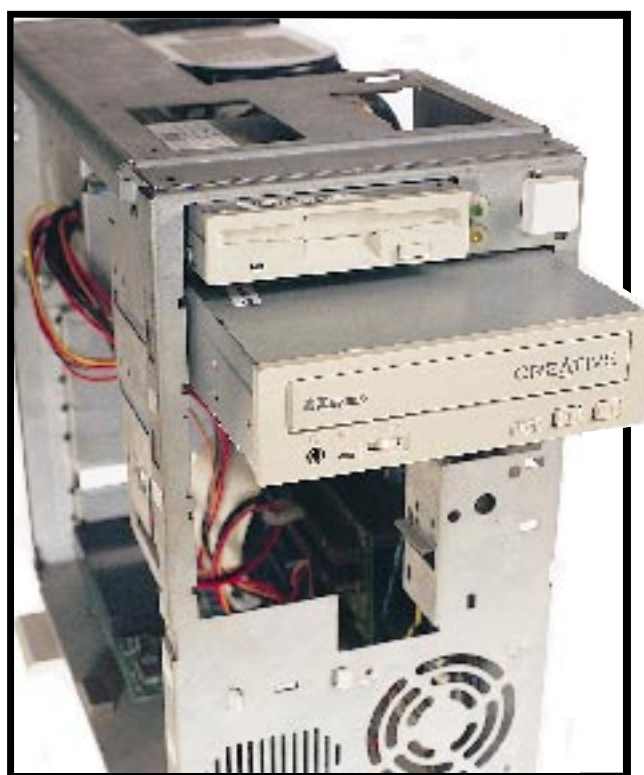

4 Before fitting your CD drive, decide whether you are going to attach it to the sound card or to the existing IDE interface. The interface is simply two rows of 20 brass pins, each pin being 5mm in length. If you've got an IDE cable and there's an interface on the sound card, use these. If not, you need to find your PC's own IDE interface. Start at the hard disk drive and locate the flat ribbon cable coming out of the back of it. Follow this cable to the point where it attaches either to the main system board or to an expansion card. This is the IDE interface. Many computers have a secondary IDE interface next to the one the hard disk is connected to. If your computer only has one, you can buy an IDE cable with two connectors on it: one for the hard disk and one for the CD drive. Your computer may already be fitted with one of these.
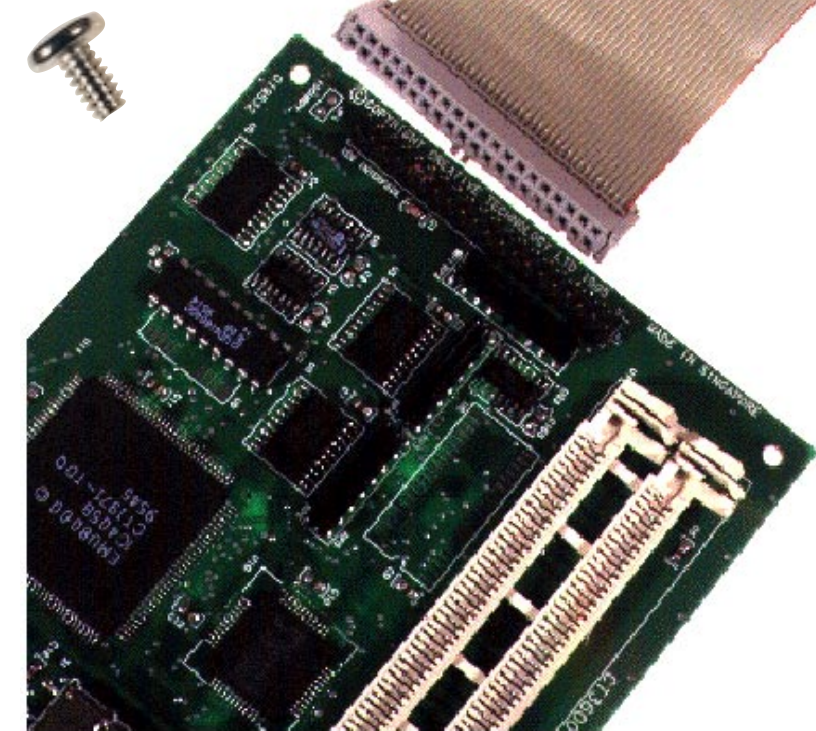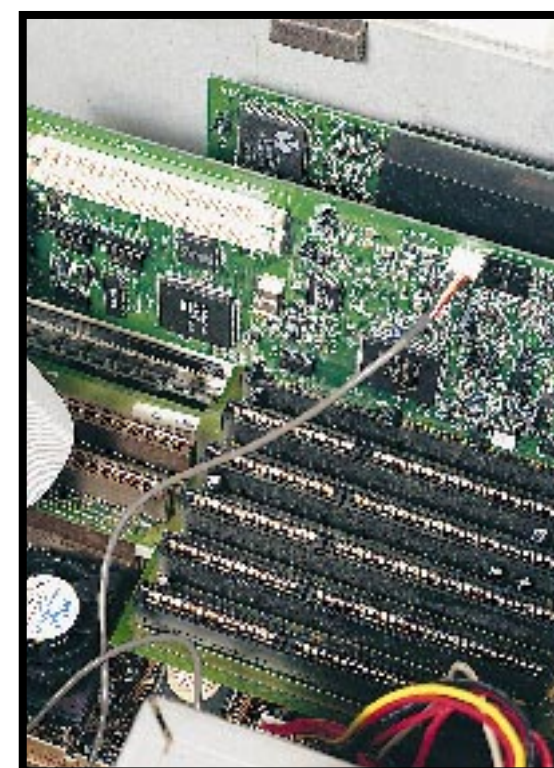

3 Choose an empty expansion slot and remove the blanking plate that's there to stop dust (and inquisitive tiny fingers) getting inside your PC. Keep the retaining screw handy. Next, take hold of your sound card, touching as few of the components as you can, and push it firmly into the chosen expansion socket. Secure it with the screw you removed from the blanking plate.

5 Make sure your CD drive is the right way up and slide it into an empty drive bay, but don't screw it in place yet because it's easier to connect the cables if you can move the drive back and forth.

6 Locate an unused cable coming from your system's power supply and push it into the DC power socket on the drive. These cables only fit in one way so don't use force: a firm push is all that's required.

7 Connect the IDE cable between the socket on the back of the drive and the IDE interface you have chosen on the sound card or the PC. You'll find that the cable only fits into the CD drive if you line up a notch in the drive's socket with a ridge on the cable's connector, so you can't get the cable the wrong way round. Unfortunately, the same may not be true at the other end of the cable. The correct fitting is to make sure the coloured strip on the cable is attached to pin number 1 of the IDE interface. Pin numbers are usually marked on the circuit board itself, not on the interface. Connecting the cable the wrong way round won't do any harm, but the drive won't work until you put it right.

8 There's an optional connection you'll need to make if you want to play audio CDs on your PC: you don't need to do this if you just want sound in Windows and DOS programs. An appropriate cable should have been supplied with the CD drive and you connect it between the 'audio out' socket on the drive and the 'CD in' pins on the sound card.

9 Finally, screw the CD drive into place and check that all the connections you've made are secure. Before you put the case back on your PC you'll need to push out the plastic blanking plate which was used to hide the previously empty drive bay. Then refit the case and connect the PC to the mains.

Can my PC cope?

● You can fit multimedia add-ons to practically any PC, but guidelines called the MPC specifications lay down some ground rules. Most current multimedia software is written to MPC 2 standards, which specify at least a 486/25MHz PC with 4Mb of Ram and a video card capable of 65,536 colours when operating at 640x480 resolution. To this you have to add a 16-bit sound card and a double-speed CD-Rom.
● The minimum hard disk size for MPC 2 is 160Mb, but this is way too small if you're running Windows 95. You really need at least 340Mb.
● You need at least one spare expansion slot inside your PC. Most people have plenty of free slots unless they've already added a box full of peripheral drives, modems and gizmos, in which case something's got to go.

10 Plug the speakers into the sound card and, if you've got one, connect a microphone to the card's 'mic' socket.

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CD-ROM Software

   Welcome to the CD-ROM Software installation program.

   This program installs CD-ROM Software files onto your computer's hard
   disk.  Before installing, please read the README file for the
   latest information.  If you need more information before deciding
   on a certain option, you can always get help by pressing F1.


      ✦  To read the README file, press F2.

      ✦  To install CD-ROM Software now, press ENTER.

      ✦  To learn more about INSTALL, press F1.

      ✦  To quit this program without installing, press F3.




ENTER=Continue  F1=Help  F2=README  F3=Exit
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11 You're now ready to install the software. Windows 95 users should skip this section and read step 12. Windows 3.1 or 3.11 users will need the floppy disks supplied with both drive and sound card. Start with the CD drive's install disk and follow the instructions provided with it. Most CD installation routines are DOS programs, so if you are in Windows, you'll have to exit first. Follow the instructions to install the CD drivers, which is quite a painless procedure. If the software asks you whether it should automatically modify your CONFIG.SYS and AUTOEXEC.BAT files, answer yes. Next, run the sound card's installation disk. Note that your sound card probably comes with a lot of extra software such as sound mixers, editors and recording utilities. You don't actually need any of this stuff, but install it anyway – you can always delete it later. Now skip to step 13. ▶

Choosing a sound card

Sound cards have to handle two distinct types of sound:
● digital – 'real' recordings of voices, effects or music that have been digitised for computer playback;
● synthesised – sounds and music produced by the sound card itself in response to instructions from the PC.

Almost any sound card described as '16-bit' can make a decent job of reproducing the first type of sound, but the quality of synthesised music varies tremendously. If you're looking for more than just an audible accompaniment to games and entertainment titles you should consider buying a wavetable sound card, designed to produce more realistic synthesised music.

Before choosing a sound card, find out whether your PC has a spare IDE interface (see step 4). If you don't have a spare connector in your PC, make sure you buy a sound card with one.

Choosing speakers

● The most inexpensive speakers are unpowered and rely on the amplifier built into the sound card. They also tend to be quite compact so they don't get in the way if you're working in a cramped area, but they're not really suitable for other than personal listening.
● Another type of speaker works on batteries or from a mains adaptor but can also be used unpowered. With this type of speaker, any external volume and tone knobs only work when they are in powered mode and therefore using the amplification built into them. In non-powered mode you have to make adjustments using software controls.
● The best sound comes from larger mains-powered speakers, but these can be bulky and unless you're into making your own music or using your PC as a hi-fi system you can probably get by with one of the cheaper types.
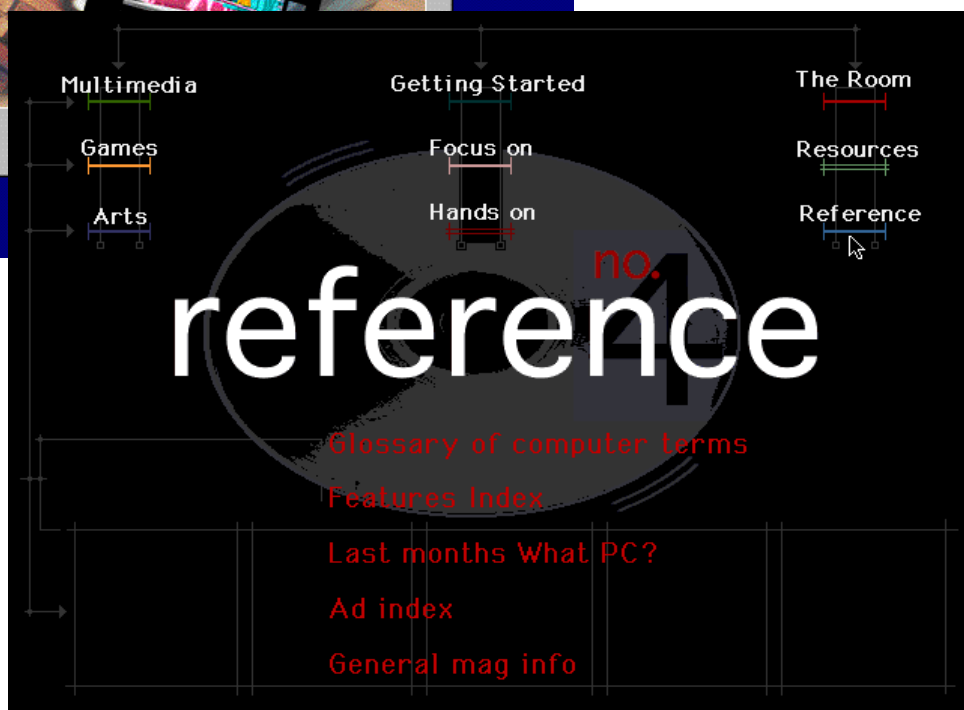
CREATIVE Application Setup

Welcome to the Creative Application Software Setup Program!

Welcome to the Creative Installation

CREATIVE

12 (Windows 95 only) When you turn on your PC, Windows 95 will load and it should automatically detect your new hardware. Have your Windows 95 disks (or CD) ready because you may be asked to insert them at some point. Any extra software supplied with your sound card is installed in the usual Windows fashion, but it's all optional because Windows 95 comes with everything you need for multimedia built into it.

Multimedia   Getting Started   The Room
Games   Focus on   Resources
Arts   Hands on   Reference

reference no.1

Glossary of computer terms

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13 You must restart your computer before the new software takes effect. Whichever version of Windows you are using, your new CD drive should now appear in File Manager or Explorer, just like any other drive. Video clips will now be accompanied by sound and you're ready to enjoy the world of multimedia. Perhaps you should immediately put this month's *What PC?* cover disc into your PC and see what you've been missing.

Hints and tips

● During the upgrade it's often easier to attach cables to the sound card before pushing it into its expansion slot.
● If the bay you're fitting the CD drive into is immediately above or below your floppy or hard disk drive, you might find it easier to slide in the new drive if you first slacken the nuts on the adjacent drive.
● Some amplified speakers sound fuzzy or distorted if you attach them to the speaker socket on the sound card. If this is the case, try plugging them into 'line out' instead.
● If Windows 95 does not automatically detect your new equipment, choose Settings, Control Panel, Add New Hardware and an install wizard will guide you through the process.

All-in-one solutions

If you've never had the lid off your computer before, you might be understandably wary of buying several pieces of kit from different manufacturers and trying to make them work together. If this is the case, you should consider buying a complete multimedia upgrade kit in a single box.

The quality of these kits varies and suppliers of some of the cheaper examples will simply have bundled together separate components with their original manufacturers' manuals. For this computer class we tested all the procedures using the Creative Labs Microsoft Multimedia Family 32 upgrade kit. This costs £325 including VAT, but it offers an eight-speed CD drive, wavetable 32 sound card, excellent documentation and an attractive bundle of Microsoft CD-Rom titles. Call 01245 265265 for details.

Watford Electronics (01582 745555) sells its Aries eight-speed kit for £245 and Evesham Micros (01386 765500) has Panasonic upgrade kits from £100 to £329, depending on the software supplied.

An Aztech six-speed kit is available from Technomatic (0181 205 9558) for £175 and an eight-speed kit for £246.