ULTIMATE UPGRADES

Competitive memory and hard disk prices make now an ideal time to upgrade your PC, allowing it to run the latest power-hungry applications. We show you how to turn a standard setup into an exceptional system capable of most PC-related tasks – including digital video-editing

In the past year or so, incredibly high PC specifications coupled with low prices have made editing DV (digital video) on a PC a realistic proposition for many home and business users. Many people who have already discovered the delights of photo-editing on their PCs are now looking to DV-editing as a new challenge. Improved DV support and tools built into Microsoft's latest operating systems are further reasons for you to consider making a few hardware upgrades in order to take advantage of a rewarding pastime.

Even if your PC is less than a year old, it will almost certainly benefit from a minor hardware overhaul, regardless of whether being able to edit digital video on your desktop is your ultimate aim. It's no secret that there's never a 'right' time to buy a PC because, however high the specifications you choose, six months down the line you'll be able to get a system containing even more processing power, memory and storage capacity for the same money – probably even less. Chances are, manufacturers will have come up with new 'must-have' hardware kit to accompany that additional number-crunching ability, too.

To keep up with the times and take advantage of technological innovations, your trusty PC (the one the salesman promised you was 'as future-proof as they come', but signals its inadequacies each time you install a new piece of software) needs to be kept happy with periodical treats – or upgrades. These will ensure your PC runs applications smoothly and without complaint and also enable you to customise your off-the-shelf system, dedicating extra memory or processing power to the programs you use most.

With memory prices currently exceptionally low, now is a great time to think about such an upgrade. You can add an extra 256MB of RAM and install a whopping 60GB hard drive to your existing PC setup and give it an almost instant boost for as little as £100 or so.

The ultimate aim over the next few pages is to show you how to turn a fairly standard PC setup into a system on which you can edit digital video. But you can also follow as many or as few of these upgrade instructions as you like to give your setup an overhaul.

Hardware essentials

If you're going for the full monty and want to turn your PC into an editing suite as well as a souped-up PC, you'll need a video capture card (if you want to convert analogue recordings to digital video), an Mpeg decoder, plenty of dedicated graphics memory and a FireWire card. This will enable you to transfer your film footage from your DV camcorder or other moving image capture device such as a webcam, PDA (personal digital assistant) or digital camera to your PC.

Once you've shelled out for these hardware essentials, you'll need some software with which to begin editing your movie. We'll have a rundown of video-editing software in next month's issue of *PC Advisor,* but there's pricing information for this upgrade guide on page 50.

Initially, you may find the idea of editing a full-length film rather daunting, so why not try Windows Movie Maker, which comes as part of Windows Me and XP and, for those running older operating systems, can be downloaded for free from the Microsoft website.

Absolute basics

First things first: check your existing hardware specifications to make sure that the components you wish to replace can be upgraded – and can be done so cost-effectively. The older your PC, the more of the system will need to be upgraded and the more those upgrades will cost.

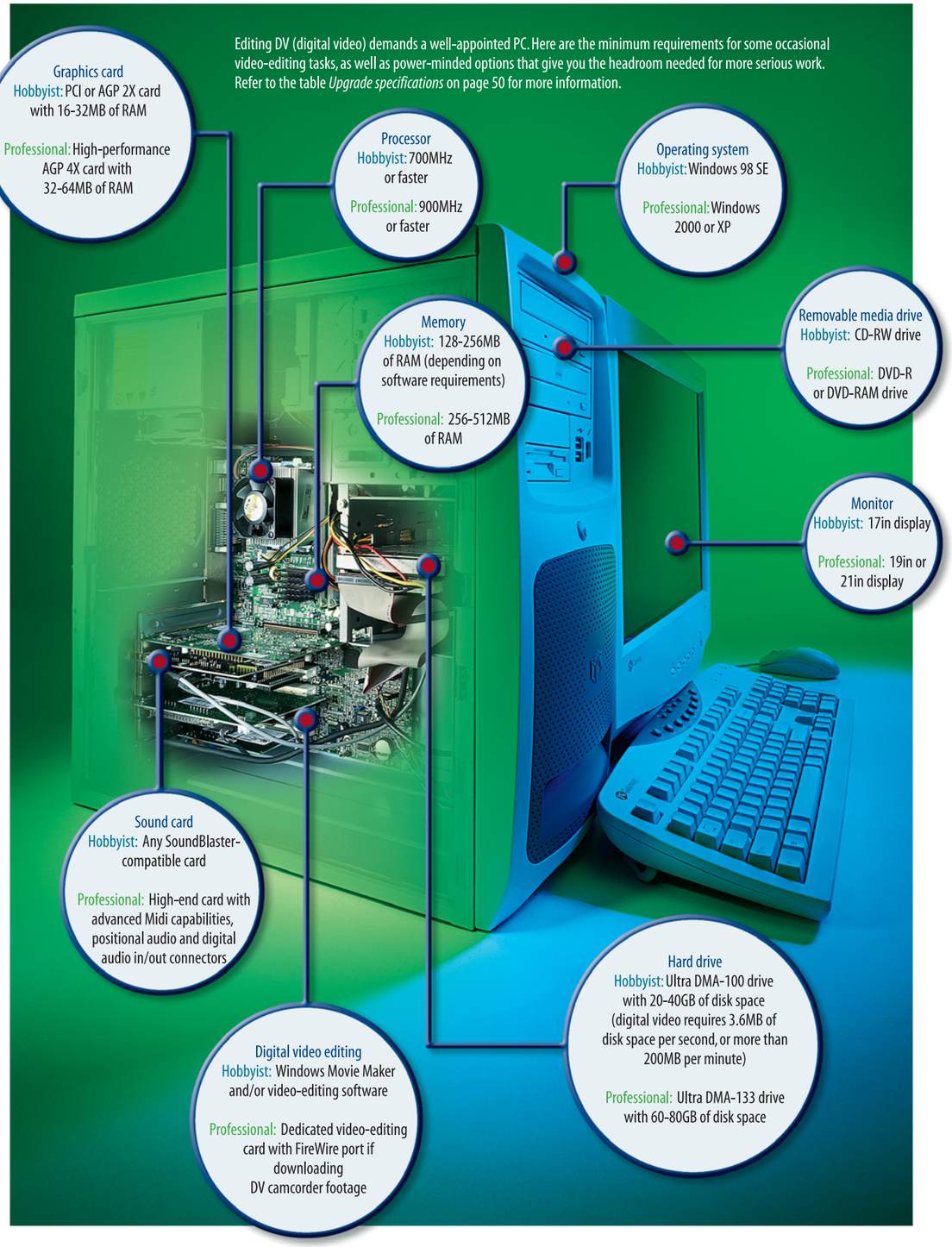
For example, first-generation Pentium chips can't easily be substituted for Pentium II and III processors. In fact, there's very little point in upgrading your PC processor since the cost of doing so (and then following suit with the RAM and hard disk capacity in order to take advantage of its improved abilities) will almost certainly exceed that of buying a whole new system.

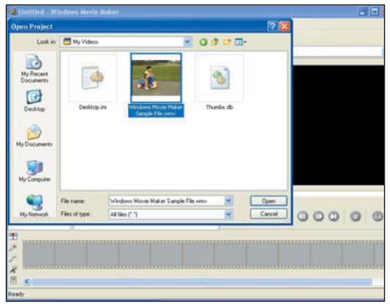
For this reason, we haven't described how to upgrade a processor here. Note, however, that to be able to run digital video-editing applications your machine will need to run at 900MHz or above.

If your processor isn't up to the task, think about buying a new system or even, as *Nearly new PCs* on page 136 suggests, going for a refurbished machine that, as time goes on, you'll be able to update simply and cheaply. Some PC vendors will even offer trade-in deals.

You should also be aware that, by opting to upgrade, you will almost certainly invalidate any warranty cover you may have, at least for that component. Some vendors will declare your cover null and void even if you simply unscrew the PC casing. However, the same will be true of asking your local PC dealer to perform the upgrade on your behalf. You could go back to the original vendor, but you'll pay far more than simply the purchase cost of the component(s) in question.

Video-editing system requirements





← Windows Me and XP have built-in basic video-editing tools in the form of Movie Maker

Bearing in mind these warnings, as long as you're comfortable with the idea of taking the casing off your PC and performing some fairly straightforward surgery, there's no reason why you shouldn't perform one or more of these upgrades and benefit from a better PC.

To perform any of these upgrades, first turn off your PC and earth yourself by slipping an antistatic strap over your wrist. This will ensure no harm comes to you or your components. You'll also need a basic toolkit: a Phillips head screwdriver and needlenose pliers are both essential items.

Adding system memory

If you want to give your PC a bit more oomph, start by adding RAM. Not only is this the most inexpensive upgrade, it's also the simplest, bar updating the operating system. More system memory will enable your PC to cope better with unwieldy applications and enable it to multitask (run more than one program at once). However, this will also depend on the size of the applications and the speed of the processor.

Memory is, almost literally, as cheap as chips right now, so it makes sense to add as much as you can afford. If you're hoping to be the next Sam Mendes, you'll need at least 256MB of RAM. Make sure you choose the right type of memory, which will almost certainly be Dimms (dual inline memory modules). PCs older than four years may use Simms (single inline memory modules). Memory specialists Crucial Technology or Kingston (www.kingston.com) will be able to advise you.

Crucial currently recommends a system with at least 128MB of RAM, and preferably 256MB, if you want to get involved in editing video on your PC. See www.crucial.com/uk/library/editing_video.asp for further information.

To add RAM, remove the casing and locate the memory sockets. If you need to unplug any cables, label them so you know which is which later. Carefully take out the old memory chips, pushing apart the retaining clips on either side. Place the new module in the socket and it should easily clip into place – Dimms have two notches and can only be inserted one way. Now fire up your computer and check on the startup screen that the new amount of memory has been registered by the processor.

Add a second hard drive

Digital video-editing, otherwise known as DV-editing, is an excessively memory-intensive process. You'll need at least 20GB of free hard disk space – it requires 3.6MB of drive space per second; that's more than 200MB a minute – even to dabble with DV and as much as 80GB on an Ultra DMA-100 disk for editing lengthy projects. Adding a 40GB Maxtor Ultra DMA-100 hard drive currently costs around £60 excluding VAT; a slightly faster 80GB drive running at 133MHz will set you back around £160.

Installing a second hard disk is quite straightforward, so it shouldn't cause you any problems. Simply change the existing drive's jumper setting from Master to Slave – you may need to remove the old drive to check or reset the jumpers. Then make sure the new drive is set to Master.

Next, insert the new drive and connect it to either the existing wide ribbon cable or the one supplied with your new drive. Attach the other end of the cable to a power connector. Hook up the ribbon cable's (probably red) coloured wire to pin 1 on the new hard drive. The drive itself can be hooked up to any free connector on the ribbon cable. If no connector is available, a Y connector (sold by any computer parts supplier) will enable you to double up.

To check that the PC knows about your new hard drive, you need to update the Bios settings and format the drive for use. First, plug in your PC and restart it. Press Del during the startup routine to enter the setup menu where you can view the Bios settings. Make sure Auto is selected for each drive in the Bios settings.

Once the new drive is successfully installed, you can start copying data to it from the old drive. Reformat the old drive and you'll be able to continue using it as a secondary storage device.

Add a CD or DVD drive

You now have a huge hard drive on which to store your raw film footage. Once edited you'll need to transfer your movie elsewhere to be permanently backed up and enable you to free up hard disk space ready for the sequel. You may wish to create copies for your friends or even, if you're exceptionally talented, to send to prospective clients.

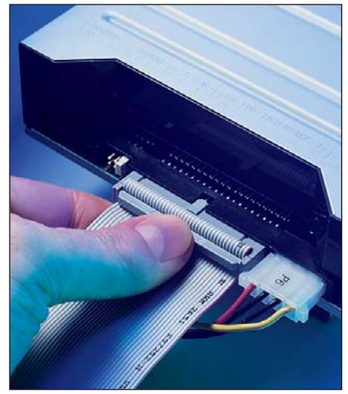
You have a number of choices at this point. Relatively up-to-date desktop systems tend to come supplied with CD-recording facilities, but you may wish to upgrade to a faster unit or from a CD-R (CD-recordable) drive – on which you can write to the disc just once – or to a CD-RW (CD-rewritable) drive that allows you to add to and edit the disc's contents. But should you choose CD or skip this ubiquitous format altogether in favour of the incoming DVD-recording standard?

Probably not. Although plumping for a CD format means you'll be restricted to viewing your movies on your PC monitor, it's still the most obvious medium to choose. You'll find recordable DVD a costly option, though prices are falling, and a single recordable medium has yet to emerge from those competing to become the standard of choice. We'll be taking a closer look at DV (digital video) recording formats in next month's issue.

To give you an idea, Dabs is currently advertising Panasonic's DVD-RAM/R IDE hard disk kit for £445 excluding VAT. This compares with Philips' 20x/10x/40x CD-RW drive which is our current Best Buy and costs £119. For around the same price you should be able to pick up a combo drive that can read (but not write) DVDs as well as being a well-specced CD-RW. This may be the best option right now; you can easily upgrade to a DVD writer once prices come down and you are sure you'll get value from it.

Whichever type of removable media drive you opt for, the procedure is similar to that you used to install a new hard disk. As before, you'll need to power down your PC, earth yourself with an antistatic wriststrap and delve inside the PC casing. You need to find the existing CD drive and a spare connector on the data ribbon cable. Again, if no connector is available, use the cable supplied with the new drive. For DVD drives there's an additional cable that needs to be connected to the Mpeg decoder board. This process is described in *Installing a FireWire card* overleaf.

We need to get the external drive in place, sliding it into a free 5.25in bay. Remove the cover of the drive bay, push the unit into place and secure it with any mounting the manufacturer has supplied. Boot up the PC, enter the setup routine and set the drives to Auto. Next, install the software and check the PC recognises your new drive. Don't panic if the installation doesn't seem to have been successful first time, you've probably got a loose connection so check this before scouring the drive manual.



↑ Once you've created your digital video masterpiece, make a copy on CD so it's safe from PC failure and you can free up your hard disk space

A newer operating system

If you bought your computer two or more years ago it will most likely still be running Windows 98 or even 95. Until recently, Microsoft has given you precious little reason to move over to its newer operating systems. But with the launch of Windows XP – by all accounts its most stable, user-friendly and reliable operating system for years – and with some brand-new hardware installed, you may want to consider making the move.

For DV fans, Windows XP provides better than ever support for streaming media and digital video applications. Upgrading may even be a necessity if you're running an older OS that's not supported by your DV hardware. Windows XP gives the CD-recording process a boost, allowing you to burn CD-R (CD-recordable) and CD-RW (CD-rewriteable) discs at the highest rate. This will prove useful when you're ready to save your edited film for posterity.

With a compatible DVD decoder you can watch digital videos in the built-in Windows Media Player. Note however, XP and Me's promising-sounding Windows Movie Maker lets you edit video but only so you can view them on a PC. There's no option for outputting it to a VCR, which rather limits its usefulness.

Graphics and capture cards

The latest games, multimedia software and DVDs are displayed at their best when there's plenty of graphics-processing memory devoted to them. We don't recommend anything less than 16MB and, for intensive gameplay and applications such as DV editing, you'll need 32 or 64MB.

If your PC has a good graphics card, you just need to add FireWire capability (fast data transfer standard supported by the majority of DV devices). We suggest an all-in-one kit such as Pinnacle's Express DV which combines the necessary editing software with a FireWire connection.

→ Turn to page 50 to continue...

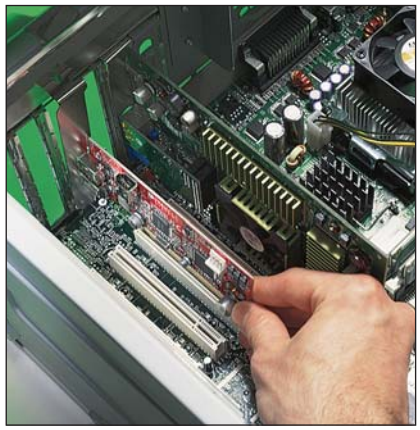
Installing a FireWire card

Turn off your PC, unplug it and remove the cover. Consider using an antistatic wrist strap to minimise the possibility of static-charge damage. Find a free PC slot and remove the metal cover. Carefully insert the card, press it firmly into the slot and screw it down.

To install the driver software, plug in your PC and turn it on. Windows should detect the new card and start the Add New Hardware Wizard. Driver installation details vary by card manufacturer, so read the directions that came with your card. Some cards include their own driver on CD-ROM, others require you to install Windows' own IEEE 1394 driver. (You'll need your original Windows installation CD-ROM disc.)

Finally, you need to add some video-editing software. Once your editing software is installed, connect your DV (digital video) camcorder to the FireWire card using the supplied cable. You're now ready to go. If you run into any problems capturing or editing video, check all your connections. If that doesn't help, read the manual for hints and tips and consult the FAQ section on the maker's website. If you still encounter problems, call the manufacturer.

We'll be publishing reviews of the latest entry-level and professional DV editing software next issue. Alternatively, find reviews of individual packages in our online archive at www.pcadvisor.co.uk/reviews/software. You'll also be able to try out Pinnacle Studio 7 program, which will be on next month's cover disc, together with a PDF-based tutorial giving you hints on getting started with DV software.



←↑ Your PC will need FireWire capabilities if you wish to experiment with digital video-editing. But don't worry, it's a cinch to install

Upgrade specifications

The following costs are based on you having a well specified (Pentium III 700MHz or above) system and choosing to upgrade some or all the components to DV editing standards. If you're simply after a general performance boost, look to upgrading the RAM and hard disk and, after that, a faster CD drive. All prices quoted exclude VAT

HOBBYIST Suggested specifications	Suggested product	Upgrade cost	Supplier	Contact
700MHz processor or faster	N/A	N/A	N/A	N/A
20-40GB hard drive	DiamondMax 40GB Ultra DMA-100 9MS	£119	www.watford.co.uk	0870 220 0700
128-256MB of RAM	128MB Dimm	£15	www.jungle.com	0800 035 5355
CD-RW drive	Compaq Evo N150	£259	www.dabs.com	0800 138 5136
16MB-32MB 2X graphics card	Abit Siluro GeForce2 MX200 32MB AGP	£39	www.dabs.com	0800 138 5136
FireWire card/kit	Compaq 1394 FireWire PC Card	£107	www.dabs.com	0800 138 5136
Software	MGI VideoWave	£60	www.jungle.com	0800 035 5355

PROFESSIONAL Suggested specifications	Suggested product	Upgrade cost	Supplier	Contact
900MHz processor	N/A	N/A	N/A	N/A
60-80GB hard drive	Maxtor 80GB D740 Ultra DMA-133 12MS	£159	www.watford.co.uk	0870 220 0700
256-512MB of RAM	256MB Dimm	£20	www.jungle.com	0800 035 5355
CD-R/DVD combo drive	Toshiba SD-R2102 CD-RW/DVD combo drive	£167	www.wstore.co.uk	01252 745 000
DVD-R drive	HP P1544B DVD-ROM drive	£90	www.wstore.co.uk	01252 745 000
DVD-RAM drive	Panasonic LFD201E internal SCSI DVD-RAM drive	£289	www.watford.co.uk	0870 220 0700
32-64MB AGP 4X graphics card	ATI Radeon DDR 64MB video in/out	£129.99	www.jungle.com	0800 035 5355
FireWire card/kit	Compaq 1394 FireWire PC Card	£107	www.dabs.com	0800 138 5136
Software	Adobe Premiere	£443	www.dabs.com	0800 138 5136