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# 1 Before You Start

*This chapter is an introduction to the subject of computer upgrading and fixing, and offers some general advice on issues you should consider before you start pulling your PC to pieces.*

# Introduction

Given the pace at which computer technology is advancing, upgrading parts as they become obsolete is the only realistic way of having a PC that's always capable of handling the latest software and hardware. Many people though, are wary of delving inside the system case for various reasons. These include: a) ignorance of what lies within, b) fear of invalidating warranties, and c) fear of damaging the PC. So they take the PC to a computer store and put up with the inconvenience and cost.

However, it is a fact that the physical act of replacing a computer part is very easy to do and is something that virtually anyone is capable of. This book provides you with all the information you need, plus illustrated guides on how to install every component in the PC.

This is actually the simple bit, though. Getting the right part for your purpose and making sure it is compatible with your existing setup is more difficult as it requires some knowledge about the part in question. For example, say you are upgrading the hard drive: there are different types of this device, plus they come with various interfaces, e.g. SATA, SCSI. These interfaces all have pros and cons, which make them suitable for some setups and less so for others. Which will be the right one for your PC? What type of drive should you go for?

To ensure you make the right choices, you will find detailed descriptions of all the computer's parts and relevant specifications. This information will enable you to make an informed decision and so avoid an upgrade that, at best, does not produce the desired result and, at worst, does not work at all.

There is also the issue of setting up of devices. With some, such as a sound card, this is straightforward but with others there is a lot more involved. For example, hard drives need to be partitioned and formatted before they can be used. Other parts require settings in the BIOS to be altered. Everything you need to know in these respects is explained.

Upgrades don't always go to plan and sometimes the new part won't work. If it's an essential system component, the PC itself might not work. To cover this, we provide a troubleshooting chapter that will help you to resolve most types of fault.

**Hot tip**

If you are capable of wielding a screwdriver, you are capable of upgrading any part in a computer.

**Don't forget**

Removing and installing parts is easy. Getting the right part is not quite so easy, and thus a major part of this book is devoted to making sure you get this right.

# Is an Upgrade Necessary?

Before you decide to replace a component, make quite sure that it actually needs to be replaced. Some can appear to be malfunctioning when in reality the problem lies elsewhere, and others can be rejuvenated in various ways. The following are some typical examples:

- Hard drive performance can be seriously affected by a process known as fragmentation. So if you suspect that yours has a problem, you should always try defragmenting it first. These devices can also develop bad sectors, which can be the cause of data loss. Running the Windows disk repair utility will fix this
- When it comes to the speed of the PC, many people are fixated with the CPU – they think upgrading this part is guaranteed to give the system a boost. While it will to a certain extent, it is a fact that adding more memory will usually have a more significant impact
- Many devices have a chip that can be upgraded by a firmware update (known as flash upgrading). Most manufacturers provide firmware updates on their websites that reprogram these chips with a set of new instructions. Not only do the updates repair bugs, they often also add new features to the device in question. Check the manufacturers' websites to see if there are any worthwhile updates available for your devices before you replace them
- Optical drives have a focal lens inside them that is used to focus the laser beam with which they read data. This lens can become contaminated by airborne pollutants resulting in inability to read discs, and even crashes and freezing of the PC. Before you replace the drive, try using a lens cleaning kit

So unless you like spending money for the sake of it and making unnecessary work for yourself, see if there's a way to extend the life of existing parts before embarking on an upgrade.

**Don't forget**

Before buying a new hard drive for extra storage, try clearing your existing drive of redundant data. You may be surprised at how much space can be reclaimed by a good spring-clean.



**Hot tip**

Devices that can be improved by a flash upgrade include video cards, BIOS chips, printers and modems.

# Buying Options

Having decided to buy a new part, the upgrader has two choices – retail or OEM. Both have their pros and cons.

## Retail

A retail boxed CPU. The package includes the processor, heatsink/fan assembly, warranty and full instructions.

A retail product comes fully packaged in a printed box, and with a user manual, registration card and a full warranty. In many cases, bundled software will be included as well. You will also get everything needed to get the device into operation. For example, buy a CPU and a heatsink/fan assembly will be supplied as well.

Furthermore, retail products are more likely to be the genuine article – it is a fact that the computer parts market is flooded with counterfeit products of dubious origin (usually from the eastern hemisphere countries).

The disadvantage of buying retail products is that they cost more.

## OEM

OEM is short for "Original Equipment Manufacturer". The term is used to describe a company that manufactures products to be sold under another company's brand name. These companies (typically, big computer manufacturers, such as Dell), buy large numbers of the various parts, put them together and then sell the finished computer under their own name.

OEM products also find their way on to the open market and can be bought from all the main outlets. The big advantage is that they are considerably cheaper than retail versions. However, there is a reason for this: they are sold in a plain box with no manual or bundled software, and usually with a limited warranty (typically, 30-60 days).

Also, very often, they will not be the complete article. For example, a retail hard drive will include the interface cables. OEM versions will not; you get the hard drive but nothing else.

So if you want to save money, buying OEM is the way to do it. Just remember that you will get no instructions, a limited warranty, and possibly an inferior product to boot. If you want guaranteed quality and all the "bells and whistles", pay the extra to get a retail product.

# Sourcing Your Parts

## Retail Outlets

Buying from a computer store is the quickest and safest method. If the part is faulty or you buy the wrong one by mistake, you can simply take it back and get a replacement.

Their main drawback is price. Stores have high overheads to pay and so charge high prices. Also, the staff in these places are often not too knowledgeable regarding the products they are selling. If you need good (and honest) advice, it may not be forthcoming.

The large chain-stores are the worst in these respects. Smaller, specialist computer stores are better and will usually offer good and impartial advice. Prices may not be any lower (they may even be higher) but the quality of service is usually far superior.

**Beware**

A common scam in retail stores is selling OEM products at the full retail price. Don't fall for this; if the product isn't supplied in the manufacturer's box, don't buy it unless you can negotiate a substantial discount.

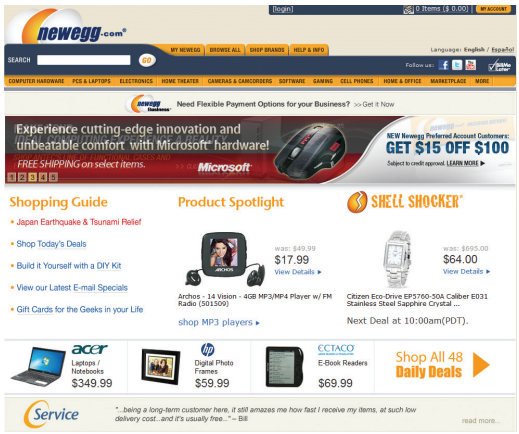
## Mail Order

The beauty of mail order is that it enables buyers to compare prices without having to trudge around different stores. Also, sales staff are generally more clued-up than they are in stores.

The main advantage though, is that prices will be considerably less than in stores.

## The Internet

Just about every product under the sun can be bought online these days and computer parts are no exception.




There are many websites that specialize in this area: two good examples of which are www.dabs.com in the UK and www.newegg.com in the USA (shown left).

Goods bought online will be cheaper than anywhere else. A further advantage is that online catalogs usually offer much more information, e.g. product specifications, than mail order catalogs.

**Beware**

Internet retailers are not above a few scams of their own. So don't buy anything from a site that doesn't provide a contact telephone number. Emails can be ignored; persistent calls can't be.

# Precautions

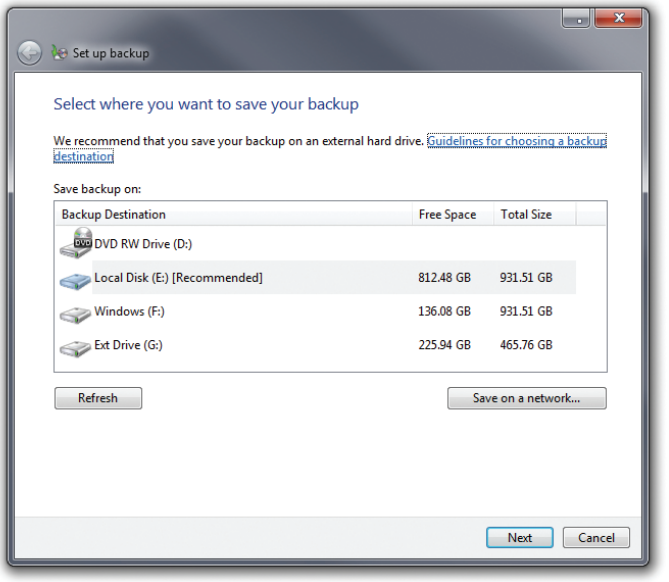
If you follow the instructions in this book, you should encounter no difficulties as a result of any upgrades that are made. If you don't, or inadvertently damage a component, you could have real problems.

One of these, potentially, is loss of data. While we're not saying that this is likely, it is a possibility. Therefore, you are strongly advised to make a backup of any data on the PC that you do not wish to lose before you get started.

To do it, you will need a backup medium (a DVD writer, a second hard drive or a USB flash drive), and possibly a backup program as well depending on the level of backup.

The simplest method is to go through the hard drive methodically and copy the required data to the backup medium. The problem with this way of doing it is that it is very easy to miss stuff. Unless you are an organized type of person, and thus know exactly where everything is, you may not back up everything you need to.

A safer way is to back it all up. In this case, you will need a backup program, such as the one supplied by Windows.




With this program (and others of its type), you can do a complete or selective backup.

**Hot tip**

Don't forget to back up items such as Internet favorites, emails, etc.