Decisions When Buying A New Computer

- Key decisions to make: What will the machine be used for? How much money is available?

Multimedia work requires a higher specification than general usage. Almost any machine can be used for surfing and email. Consider how much storage you will need, depending on what files you store.

- Key terms: **Processor** – the "brain" of the computer, **RAM** – used to run programs including the system software, **Drive / Hard Drive / HDD / SSD / M2** – these all refer to long term storage

There are 2 mains brands of processor: **Intel** and **AMD** – they are both good, but the manufacturers use a lot of jargon, and the specifications keep changing. In general terms, the higher the numbers, the better the processor. Processors have **multiple cores** these days – these allow the processor to do more things at the same time. Usually, the more cores you have, the better the system. Processor speed is measured in **GHz** and the bigger the number, the better – but will also require more power and cooling.

The usual adage is that you can never have too much RAM, and this is still true. Modern machines use **DDR4** RAM – the higher the number once again, the better. Different specifications of RAM are NOT interchangeable – you can't put DDR3 RAM in a machine that needs DDR4 RAM. As with processors, the specifications keep changing. Faster RAM needs better cooling, although power requirements are reducing. RAM capacities are measured in **GB**.

Long term storage has changed considerably in the last decade. Originally hard drives were exactly that – metallic discs covered in an electro-magnetic coating. These were replaced by **solid state drives (SSDs)** which have no moving parts. These are faster than hard drives, and prices are coming down all the time. **M2** is a specific very fast type of SSD. Capacities are measured in **GB** or **TB**. Get the most you can for your money.

Do not confuse RAM and DRIVE capacities. When powered off, everything loaded in the RAM will be LOST. In comparison, information stored on the DRIVE is KEPT even when the power is off.

- Minimum specifications: If you are going to be running Windows 10 or 11, you need **at least 8GB** of RAM. This allows you to run Windows and other software at the same time.
- Processor should have **4 cores** or more – this has now become the standard. Anything less will be underpowered, resulting in sluggish performance = SLOW!
- Do not consider anything with less than **256GB** of drive storage, given that Windows on its own needs about 25GB of storage which can increase gradually as more software is installed.

Machines of this specification can be bought for between **£200** and **£300**, depending on whether it is a **desktop machine** or a **laptop**. At this price point, there will always be compromises of course.

For any given specification, a laptop will usually be more expensive than an equivalent desktop. This is because of the smaller space and components needed for a laptop. This reduces expansion possibilities, whereas a desktop machine can be upgraded and expanded far more. However, people seem to prefer smaller devices more these days, so the desktop market has contracted, other than the very small devices intended to be used in the lounge near to the TV.

Various factors affect the prices of devices. The more drive storage provided usually puts up the cost. Manufacturers will often use an older/less powerful processor with a larger drive because the public usually knows less about processors than about storage capacity. With laptops, the size of the display affects the price, so the only way to get a larger screen with a decent specification is to pay more. The number and type of USB sockets will also affect price. People no longer seem to want optical drives so machines including these are very difficult to find. Similarly, network sockets on portable devices are getting harder to find – everyone wants smaller, more portable devices and a full-sized network socket requires precious space, even though cabled network speeds are far more consistent than wireless speeds.

Very few people should ever need to spend as much as £1000 on any computer system, since systems for less can handle pretty much everything.