IN THE PICTURE

For the occasional game or business letter the quality of the image on the screen may not be particularly critical. If, however, a computer is used seriously for business or education, then the advantages offered by a monitor over a television set become significant — and the problem becomes one of the right system for your needs.

One of the most important peripherals associated with computers is the screen. In many cases this is the television set, or a cheap black-and-white set bought specially, and though the quality obtained is acceptable, it isn't as good as it could be.

This is because the signal, in passing from the screen memory inside the computer to the screen, has to undergo several stages of encoding and decoding. No matter how good the circuitry involved, it will inevitably be less than perfect, with the result that the final image is often smeary and hard to read, and frequently has a most unpleasant shimmering effect, which is known as 'dot-crawl'.

The secret of really high quality displays is therefore to eliminate these signal distortions, and since they are produced by the modulating and demodulating circuitry this can be achieved simply by leaving these processes out of the system entirely.

In effect that is what a monitor does. It is a television tube without the television decoders, a simplified system that is able to generate sharper, brighter and generally more stable images.

Since the television decoders are absent, the monitor will not perform if it is connected to the television output socket on your computer. You need a Video Out socket. It may not be labelled as such, but the important detail is that it must be output that does not pass through the modulator, and to check this you should consult your computer manual.

The process of generating an image on a television screen is largely a matter of making sure that everything happens at the right moment. The problem lies in the fact that the sweep of the beam across the face of the tube is generated inside the monitor, and is thus inaccessible to the driving device in the computer itself.

Turned on but left unconnected to an input, a monitor will scan the beam over the whole screen 50 times a second, producing a perfectly even illuminated field. Turning this into a picture involves switching this beam on and off in exactly the same place every fiftieth of a second, and any instability in this process will result in a most unnerving shimmering, which makes the screen at best exhausting to look at and at worst unusable.

The whole process depends upon 'synchronisation pulses', which together with the brightness signal are produced directly by the computer and output to the monitor.

There are two types of 'sync-pulse': one for each line of the picture, and one for each complete picture. At the end of each complete cycle the monitor is sent a short pulse telling it that the frame is now complete and that the electron beam (and thus the dot that it produces) must be returned to the top left-hand corner of the frame to repeat the cycle.

A similar event occurs at the end of each line. The monitor receives a pulse telling it that a line is complete, and that the electron beam must be returned to the left-hand side of the screen to start on the next line.

There are several kinds of monitor, but they fall into two main categories, colour and monochrome, subdivided into the different types of signal that they accept.

Monochrome monitors are quite simple, and

A Picture Of Dedication

These pictures show the quite dramatic difference between the image quality attainable with a dedicated monochrome monitor (in this case Apple's Monitor III) and a high quality domestic television set when it is used to display the output from a word processing package

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