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Professional Touch

Not all graphics and CAD software is expensive. Psion's VU-3D for the 48 Kbyte Sinclair Spectrum offers most of the facilities found in professional packages (though, of course, to a much less refined degree), and costs less than £10

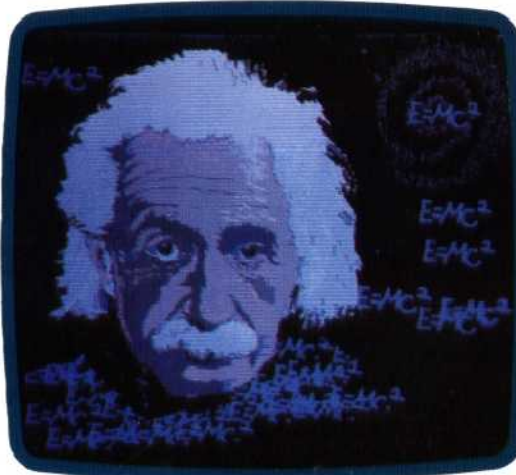


array. Consequently, the size and performance of the computer involved becomes important. If the array is large enough to enable one whole byte to be allocated to the definition of each pixel or element of the image, then the amount of information that we can retain about the single element is quite large (256 separate pieces when using an eight-bit processor, a great deal more for 16- or 32-bit devices). But the problems of creating this much storage space are practically insoluble, and so we are forced into a compromise

Hot Dog

Io Research's Pluto system brings high resolution image generation to a wide range of small microcomputers with the addition of a fast processor and extra memory. The basic system costs only £500 and gives eight fixed colours and a resolving power of 670 x 576 pixels

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— but one that is generally quite acceptable. Instead of allocating one whole byte to each element, it is sufficient to allocate a single bit, if all we want to do is indicate the presence or absence of an element at this position on the model.

Computer Aided Design software shares many attributes with Computer Generated Image packages: curve smoothing, hidden element removal, shading, block filling and re-colouring, for example. It only requires the repeated solution of a simple equation for a series of values to form a curve. If we specify the starting and finishing points for a given line, and the maximum distance

away from that straight line that the curve will reach, then we have provided one solution to the equation. We can work backwards from that solution to deduce the equation itself, and then proceed to solve it for the rest of the series of values, thus forming the curve.

This ability to compose a drawing from standard component parts is the real strength of CAD systems. No longer is it necessary to re-draw common individual components. When they have been defined once, that definition can be recalled as often as required and incorporated into new drawings. One particularly good example of this is

