Picture Books

Apple's Lisa is the most innovative business computer on the market. Many of its features, however, will eventually appear on home computers

The Lisa, produced by Apple Computer, is a machine intended purely for business use that costs £6,500, not including the printer. So you might well ask what place such an expensive machine has in THE HOME COMPUTER COURSE. The reason we've chosen to give it so much attention is that the Lisa is very much ahead of its time, and many of its features will eventually be used in home computers. Apple are known to be working on scaled-down versions of the project already, and rival manufacturers are rushing to emulate its capabilities.

It is not the hardware that is so radically new about the Lisa, but rather the standard software that comes with it. Developing sophisticated software is, in fact, a general trend for all microcomputers at the moment. It now takes fewer man-hours to design and build a new type of microcomputer than it does to write a sophisticated arcade game or business program. Software is becoming the most important element in any computer system, and increasingly the most expensive as well. Home users now find that they can spend as much on cassette and cartridge programs in one year as they did on the machine itself.

Nevertheless, we'll discuss the Lisa's hardware first, the design of which was fundamentally dictated by the requirements of the software. The Lisa comes with one megabyte of RAM as standard (that is, one thousand times the standard memory on a ZX81). Such a large memory requires the microprocessor to spend quite a bit of its time in 'memory management' — moving data around in memory and keeping track of where everything is. The processor is a Motorola 68000, which is a 16-bit device (this means it is capable of processing 16 bits of data at a time, where most home computer CPUs handle eight). By home computer standards, it is a very fast processor with a very advanced instruction set. For permanent storage, the Lisa system includes two floppy disk drives, and a single hard disk drive — a detached unit with few external features. The hard disk is needed both for capacity (five megabytes) and speed — the Lisa makes use of a large number of programs that need to be exchanged frequently between the RAM and disk. We'll be looking at hard disks in more depth later on in the course, because low cost units are already appearing on the market for home computers.

Another striking feature of the Lisa's hardware is the built-in monochrome display, which has a resolution of 720 × 364 pixels. This permits a variety of different typefaces for text, as well as the kind of graphics shown in this feature. The Lisa's design incorporates special chips and circuitry solely dedicated to drive this display and rapidly move the images.

IAN McKINNELL

User Friendly
Apple's Lisa was designed to be used by people in a business environment who had no previous experience of computers. Use of a hand-held 'mouse' means that the keyboard is used far less frequently than on other systems

Linked to an appropriate printer — such as a high-speed, high-quality dot matrix unit — it is possible to reproduce on paper anything that can be displayed on the screen. However, if the printer is not compatible with the high level of screen resolution, the Lisa will produce a printed image of the highest quality possible.

The Lisa's keyboard is detachable from the main unit, and is well laid out. However, the keyboard is used less frequently than that of other machines, because the Lisa features a 'mouse'. A mouse is one of a number of alternative ways of inputting information to the screen without using the keyboard — other methods include the joystick, light pen and voice recognition units. The mouse is essentially a hand-held box, about the size of a packet of cigarettes, which is moved across