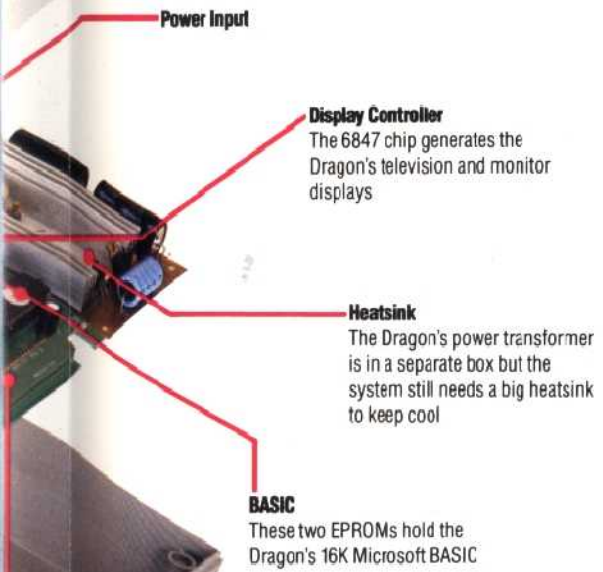**Dragon Disk**
Dragon's disk unit has either one or two drives of 175K each. The unit comes with the small but adequate Dragon DOS built into its interface cartridge
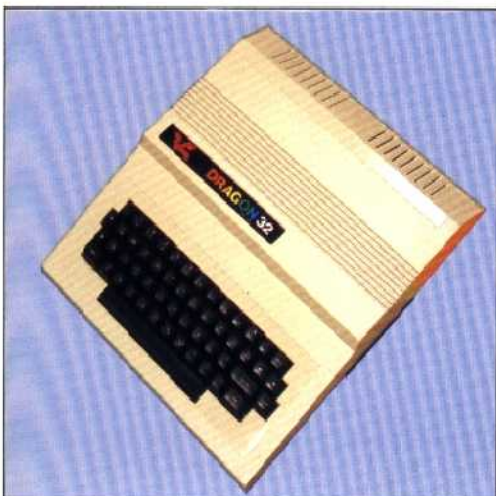
Power Input

Display Controller
The 6847 chip generates the Dragon's television and monitor displays

Heatsink
The Dragon's power transformer is in a separate box but the system still needs a big heatsink to keep cool

BASIC
These two EPROMs hold the Dragon's 16K Microsoft BASIC

Dragon 32
The Dragon 32 is still available and popular as a home computer. But many owners are upgrading their machines to the power and flexibility of the 64

Dragon to run arcade-style games, and can be used with the specially written software to provide an upper and lower case display of 51 columns by 24 rows — useful for spreadsheet and word processing programs.

STORAGE AND EXPANSION
The Dragon has a good dialect of Microsoft BASIC. This is an extended 16 Kbyte version and among its facilities are a set of powerful sound and graphics commands. The Dragon can retain a large number of graphics screen images in memory at once and can switch instantly between them, providing a simple way to do graphics animation in BASIC. You can also opt to use memory space normally reserved for graphics for BASIC programs and data.

The machine has a complete set of interfaces, including two analogue-to-digital converters and a standard Centronics port for connecting most types of parallel printers. The new serial port can connect to printers (including quality daisy wheel printers) or to other computers and equipment. An interesting way to develop the system would be to connect it to a professional terminal, allowing more advanced software to be used.

The Dragon interfaces to standard cassette recorders and can start and stop the tape from within the program and replay sound from the tape through the television speaker. BASIC also supports a range of cassette file handling commands. We have discussed the Dragon's disk drives (see page 104). These come with a small but workable operating system in ROM in the interface cartridge as well as a set of extensions to BASIC.

The Dragon 64 cannot be expanded into a serious business system until it has an adequate screen display and a professional keyboard. As it stands it is a very interesting and capable hobbyist's machine.

Multi-Tasking/Multi-User OS9
The Dragon 64's 6809 microprocessor, 64 Kbytes of memory and disk drives enable it to run the professional OS9 operating system. This is the leading operating system for 6809-based computers and provides some excellent facilities as well as access to a range of sophisticated business packages. Dragon has been to considerable lengths to make OS9 available for the 64. Unfortunately, the high cost of OS9 and its software, while quite in line with other business packages at around £80, may limit its popularity amongst home users.

OS9 provides the standard of facilities associated with UNIX, a minicomputer operating system that is available on the largest of business micros. Among its features are the ability for a user to run more than one program at once (multi-tasking), and for more than one person to use the computer at the same time (multi-user). To achieve these abilities, OS9 organises files of programs and information into a formal structure, rather than just as a straightforward directory of files on each disk. Each file also has passwords and access codes so that certain programs and information can be accessed only by particular people.

Most home users will not exploit these facilities and the Dragon would be under considerable strain if OS9 were used to the full. However, it does provide a low-cost way of experimenting with a sophisticated system, as well as giving the Dragon user access to advanced programs and alternative languages such as C and PASCAL

IAN McKINNELL

DRAGON 64

PRICE
Approx £225
DIMENSIONS
380×330×90mm

CPU
6809

MEMORY
64K RAM, of which up to 45K is available for BASIC programs
16K ROM

SCREEN
In the text mode, 16 rows of 32 columns, upper case only with a set of graphics shapes in eight colours. Graphics modes from 128×96 in four colours to 256×192 in two colours

INTERFACES
Joysticks (2), serial port, parallel printer port, cassette port, composite monitor with sound, TV and cartridge expansion port

DISK DRIVES
Up to two 175K disk drives, with either Dragon DOS or the OS9 operating system

LANGUAGES AVAILABLE
BASIC, FORTH, 6809 Assembly language. OS9 provides C, Pascal, structured BASIC and others

KEYBOARD
Typewriter-style with 53 keys

DOCUMENTATION
Unfortunately, the Dragon's manuals contain only the most rudimentary information and suffer from omissions and errors

STRENGTHS
The 64 has elements of a sophisticated computer — a large memory and a complete range of interfaces. The disk system is very good value and the ability to run OS9 software a major, if costly asset

WEAKNESSES
Suffers from limited keyboard and screen display modes, especially when used for serious work. The 1 MHz 6809 CPU may prove too slow for some OS9-based applications