



# OVER SIXTEEN

**The Commodore 16 is the cheaper of the two 'new generation' home and small business computers introduced by the company in 1984. The other is the Plus/4, which comes with a larger memory and rudimentary integrated software in ROM (see page 709).**

Possibly intended to supersede the Vic-20, with its minuscule 3,583-byte memory, the 16 shares with the Plus/4 a very powerful BASIC, which supplements the BASIC disk-handling commands of machines like the CBM 8296 with a batch of toolkit, graphics and simple sound commands, while making a token gesture towards structured programming with DO ... WHILE and LOOP ... UNTIL ... EXIT constructs.

Unlike the Plus/4, which has a keyboard and case that are radically different from anything seen previously from Commodore, the 16 is supplied in a similar casing to the earlier Vic and 64 models, although the colour scheme is different — charcoal, with light-grey keys — and the key layout has been changed. The keys are large and well placed and have a firm professional feel to them, like those of the 16's predecessors. An interesting innovation is the provision of a HELP key (actually function key F8), which aids the user after a program has stopped with a syntax error report by displaying the line containing the error and flashing the part that is incorrect. In multiple-statement lines, the characters flash from the error to the end of the line — it would be more helpful if the flashing were restricted to the actual error (e.g. PRONT for PRINT).

## POINTS AGAINST

The most controversial aspect of both the 16 and Plus/4 is the fact that for the first time Commodore has produced hardware that is not 'upward compatible' with what has gone before — no Vic or Commodore 64 software will run on either new machine. The joystick and cassette sockets are also different, with the former departing from the nine-pin D-connector type that is generally regarded as a standard fitting. Disk interface and monitor sockets, however, are identical to those found on the 64.

The most serious change for the worse, as far as the games programmer is concerned, is that there is no provision for sprites. Though the Vic-20 had none, their use in the Commodore 64 (and competitive machines) has so accustomed users to sprites for the simple manipulation of graphics shapes that this seems a strange omission.

On power-up, the screen shows the familiar Commodore display, with the difference that the BASIC indicated is version 3.5, and there are 12,277 bytes of memory available. BASIC 3.5 is actually the fifth version to be written for Commodore machines. The original version, 1.0, contained no disk-handling commands, and these were very cumbersome in version 2, which was for some reason the dialect incorporated in the Vic-20 and Commodore 64. By March 1980, version 2 had been superseded by version 4, which is a very efficient BASIC written for the 80-column Pets, the 8032, 8096, and now the 8296.

Version 3.5 is almost identical to BASIC 4, with a number of extra commands. In all, the new version has over 50 more commands and functions than were offered by the Vic, including toolkit commands used in writing and debugging programs, structured programming features, graphics and sound commands.

The direct command MONITOR invokes Tedmon, the resident monitor (which can also be accessed by SYS 4 as on the Pet series). This uses single-letter mnemonic commands: for example C, which will compare two sections of memory and report the differences; and S, which will save to tape or disk.

The 'kernal' routines are mainly unchanged. These are routines called from machine code that govern the handling of the input and output routines. However, the 64's IOINIT function to initialise input/output devices (and especially program cartridges) has been added at \$FF81.

### Commodore 16

Intended to replace the Vic-20 in the Commodore line-up, the new machine has 16K of memory and an improved BASIC. The Commodore 16 is software- and plug-compatible with the Plus 4, but not with the older Commodore machines, the Vic-20 and Commodore 64.



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