



BETTER BY FOUR

The Commodore 64 is one of the world's top selling computers, so it might seem that the company would be hard put to improve on it. However, Commodore's latest home computer, the Plus/4, represents an improvement in several ways. It has a better version of BASIC, four built-in applications programs, and a full 64 Kbytes of memory.

Commodore claims that the Commodore Plus/4 is intended to sell alongside the Commodore 64 and not to replace it. But the new model offers so many improvements on the 64 that if it succeeds in the marketplace, it could well supersede its predecessor entirely.

The Plus/4 uses the 7501 microprocessor, which is a development of the 6502. This chip is designed in such a way that it can access more than 64 Kbytes of memory. This means that the machine has room for a decent BASIC, while keeping its RAM free for the user. There are 64 Kbytes free to be used by BASIC programs, although this falls to 50 Kbytes when graphics are used. This is better than every other home micro, except for the Sinclair QL (see page 501), and the Advance 86a (see page 349).

An excellent version of Microsoft BASIC has been implemented on the Plus/4, and the graphics and sound commands are particularly worth noting. In graphics mode, the DRAW command will produce dots or lines and any outline shape can be filled with colour by the PAINT command. The BOX command will draw squares and rectangles in outline or in solid colour. The CIRCLE command is particularly versatile. As well as drawing circles, ovals can be created by specifying the height and width of the oval. Parts of ovals may be drawn to produce arcs, simply by specifying start and stop positions in the command.

All commands normally operate on a screen with a resolution of 320 by 200 dots. This is the same resolution as the Commodore 64, but the Plus/4 really excels in its choice of colours. It can show 120 different colours, plus black, on the screen at the same time. These are created from 15 basic shades, each of which can be displayed in eight different brightnesses. Unfortunately, the Plus/4 cannot produce sprites.

The commands to control sound are fairly standard. The SOUND command plays a note of specified pitch and duration. A separate command, VOL, specifies one of eight settings for the volume of each sound channel. All sound is output through the television loudspeaker. Only two sound channels are provided on the Plus/4,



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although the BASIC allows three channels to be specified. This 'third' channel is, in fact, a noise facility and any note given that channel reference will be reproduced as noise. This is very useful for games, when special sound effects are required.

A number of commands have been included to improve the main body of the BASIC language. An AUTO command will produce line numbers automatically when programs are keyed in; RENUMBER will give new line numbers to programs; and VERIFY will check that programs have been successfully saved on cassette or disk. There are many new commands for working with disks, and Commodore evidently hopes to sell disk drives to a high percentage of Plus/4 owners.

The Plus/4 has a text display of 40 by 25 characters. The user can specify two points on the screen to act as the corners of a 'window'. All text, such as listings and commands, will then appear within that window area only, leaving the rest of the screen untouched.

The keys on the Plus/4 are very sensitive to touch, needing only the slightest pressure for them to register. A number of characters such as @, =, +, -, and £ are given their own keys and a full set of graphics characters can be produced from the keyboard. At the top of the keyboard are four function keys, and when the machine is turned on, they are automatically set up to produce the most commonly-used commands. The function keys

Meet The Future?

Commodore's long-awaited successor to the Commodore 64 has all the features that are becoming standard in the latest micros: MSX-style looks and cursor cluster, big memory and on-board software. The sales competition, however, is intense, and potential customers are more informed than ever. Commodore is not taking its market dominance for granted, as the Plus/4's looks and features plainly show