Outer Limits

The ZX81 is still the cheapest computer available. But with the right add-ons it can be expanded into a very sophisticated machine

Sinclair's ZX81 offers the best value for money of any microcomputer on the market today, even in its basic form. But there are a surprising number of add-on units available which can turn it into a remarkably sophisticated microcomputer system. These include high resolution colour graphics, speech synthesis and communications capabilities. Of course, the computer itself has some deficiencies, but these can be overcome by the addition of a variety of readily available items such as professional standard keyboards, extra Random Access Memory and programmable joystick controllers.

RAM Pack
In standard form the ZX81 has only one Kbyte of RAM, and 123 bytes of that are taken up by system variables. Consequently, memory expansion is perhaps the first requirement of a new owner. Sinclair's own memory upgrade shown here comes in only one form — 16 Kbytes — but alternatives such as the Cheetah version offer as much as 64 Kbytes.

Acoustic Couplers
Modulator/demodulators come in two forms: direct connection modems, which require an additional jackplug connector into the telephone system, and acoustic couplers such as the Micro-Myte 60, shown here, that use the telephone handset itself.

Direct-connect modems, which are generally rather more expensive, generate and recognise electronic signals that represent the 0s and 1s of the information being received or transmitted. Acoustic couplers, which may be battery powered, translate the 0s and 1s into audible tones for transmission over the telephone network, and perform the same process in reverse to receive information

Forth ROM
Sinclair ZX microcomputers use a rather idiosyncratic version of BASIC, and while it is not possible to install a different dialect, one can change the language completely — to FORTH, for example. There are two ways of doing this: either by loading the new language into RAM from cassette, which means that the computer will revert to BASIC each time it is switched on or reset; or by swopping the BASIC ROM for another. This FORTH-in-ROM from David Husband goes further than most — it allows ten or more programs to run on the computer simultaneously. This facility can only be fully exploited in control applications, where several devices must be programmed independently

Also Available...
In addition to the units shown here, there are other devices available to enhance the ZX81's performance. A colour card, for example, will provide up to 16 colours on the TV display, and a sound generator will give three programmable 'voices'. Bi-directional ports can support up to 16 input/output devices at once. Far from being a small and unsophisticated home computer best suited for playing games and learning the rudiments of BASIC programming, Sinclair's ZX81 can be expanded to meet the full potential of its Z80 microprocessor

MARCUS WILSON-SMITH