

Tools Of The Trade

Tool kits are software packages that will enhance a limited dialect of Basic and offer de-bugging facilities to the programmer

Early home computers, such as the Apple II and Commodore PET, had limited capabilities and were designed primarily to manipulate numbers and text. The BASIC supplied for these machines was required only to provide commands and routines for these purposes. As a result, many 'utility' or 'tool kit' programs were written, usually in machine code, that operated from outside the BASIC programming area. These provided programming aids in the form of additional direct commands that could help in program construction and de-bugging.

Engineers have since come up with a multitude of graphics and sound capabilities, as a result of the explosion of interest in arcade-type games on home computers. Each new model introduces more extensive features that are soon incorporated in professionally written software.

Working Tools

These are some of the tool kits and BASIC extension packages that are available for some of the most popular home computers. Packages for creating a sprite facility on computers that don't feature them as standard are becoming increasingly popular

Tool Kits	
SUPER TOOL KIT	Available for the 16K and 48K Spectrum, from Nectarine
SPECTRUM EXTENDED BASIC	For the 48K Spectrum, from CP Software
SPECTRUM KEYDEFINE	For the 48K Spectrum, from Scientific Software
PROGRAMMER'S AID	For the Vic-20, from Commodore
BUTI	For the Vic-20, from Audiogenic
TOOL BOX	For the BBC Models A and B, from BBC Software
SPRITE MAGIC	Available for the Dragon 32, from Merlin Micro Systems
SPRITE GRAPHICS	For the 48K Spectrum, from B Sides Software
SPRITE MASTER	For the BBC Model B, from Micro Dealer UK

However, with one or two exceptions, the built-in BASIC provides little or no improvement on the earliest versions. This results in the user working out routines, often using repeated PEEKs and POKEs, to incorporate these new features into the range of available commands. As a consequence, there are now many utilities, tool kits and extensions to BASIC available for most of the popular machines. In general, these either give easier access to existing facilities (e.g. sprite or sound editors), extend software facilities (e.g. sprite creators), or provide simple aids to BASIC programming.

Extensions such as these can be located in RAM, internal ROM or on ROM cartridge. A ROM extension is preferable to one loaded into RAM, as it does not take up any user memory and is protected from inadvertent erasure. Generally, a program written with the aid of a tool kit will run only on another computer that is similarly equipped. However, there are utilities available that will generate free-standing programs, which will then run on an unexpanded version of the computer. This is the basis of most graphics and sprite editors, as well as some sound editors.

Useful features to look for in BASIC extensions are special graphics commands (such as PAINT, DRAW, PLOT, CIRCLE etc.) and sound commands (like SOUND, PLAY, MUSIC, ENVELOPE etc., or words that describe a sound effect, like BANG or ZAP). Other useful facilities are structured programming commands, such as REPEAT...UNTIL and IF...THEN...ELSE. Statements such as these enable the user to write programs that progress in a logical sequence, and avoid the untidy and difficult to understand code that results from an indiscriminate use of GOTO.

Simon's BASIC

Currently, the most complete extension to the BASIC language is 'Simon's BASIC', which is available on the Commodore 64 in the form of a ROM cartridge. The standard Commodore BASIC, built into the 64, is rather antiquated, in that it provides a bare minimum of dedicated commands and no structured programming commands. Although it does have advanced hardware features, such as a comprehensive sound synthesiser, high resolution graphics and sprite graphics, BASIC control over these functions is via PEEK and POKE. Simon's BASIC provides a considerable extension to Commodore BASIC, by way of the following extra facilities: