Sound Spectacular

The Oric-1 permits sophisticated sound control on a budget

The Oric-1 is supplied with an extensive range of facilities, and among the more impressive of these are its sound capabilities. It has a range of seven octaves and standard features include three oscillators, a noise generator and seven preset envelopes (see page 276) that can be selected to shape the sounds produced. Sound out is via the built-in speaker.

The Oric-1's BASIC defines a set of sound commands — ZAP, PING, SHOOT and EXPLODE — that describe themselves very well. The following program shows how they are used, as well as demonstrating the useful WAIT command, which causes the computer to pause for the time stated in hundredths of a second (in this case two seconds):

```
10 ZAP:WAIT 200
20 EXPLODE
30 GOTO 10
```

The SOUND command is best used for your own special effects, and is constructed like this:

```
SOUND C,P,V
```

where C=Channel or oscillator number (1–6); P=Pitch (10–5000); and V=Volume (0–15). Channel, set at 1, 2 or 3, selects any one of the three oscillators (4, 5 or 6 are equivalent but select noise as well). Pitch is a little inaccurate, but 10 is the highest note (at approximately 10KHz), and 5000 the lowest (at 100Hz). Volume is highest at 15, but 6 is a comfortable level. If V is set at 0, control is taken by a volume envelope selected by the PLAY command.

The biggest drawback to the SOUND command is that there is no way to set a note duration. This also means that SOUND cannot turn itself off! The only way to stop a note sounding is by using the PLAY command and then stopping PLAY by specifying all zeros.

The MUSIC command is ideal for specifying notes accurately. Its simple construction makes it easy to understand a quite complex music program. The format is as follows:

```
MUSIC C,O,N,V
```

where C= Channel (1, 2 or 3); O= Octave (0-6); N= Note (1-12); and V= Volume (0-15). This command works in a similar way to SOUND. Channel selects oscillators 1, 2 or 3 (although noise cannot be set in MUSIC) and Volume ranges from 0 (where control is taken by the PLAY command) to 15. Octave allows the selection of a specific octave in which the note (N) will be part of the commands, played. Octave set at 0 gives the lowest notes starting at 32.7Hz. Octave 6 extends to 3951.07KHz. For the note (N) part of the command, the numbers 1 to 12 correspond to the standard musical notes in this way:

1	2	3	4	5	6
C	C#	D	D#	E	F

7	8	9	10	11	12
F#	G	G#	A	A#	B

Light Show

The Spectrum's graphics, though limited, are easy to use

The Spectrum makes an excellent starting point for those who are interested in high resolution graphics and colour. The simplicity of use makes graphics design easily accessible, even for those with limited programming experience.

The normal upper and lower case character sets are available, together with several of Sinclair's own characters. These may be PRINTed in any one of eight colours. Colours for the character, screen and border are set by the appropriately named INK, PAPER and BORDER commands. In addition to the standard character set, up to 21 graphics characters can be defined by the user.

The screen display consists of 24 rows of 32 character spaces. The bottom two rows are, however, reserved for messages from the computer or for keyboard entries. This means that the useable screen is 22 × 32 characters. In high resolution, this converts to 176 × 256 pixels. One extremely useful feature of the Spectrum is that it has the ability to mix high resolution displays with text on the screen, allowing the creation of labelled diagrams, bar charts and so on. Once a screen display has been designed it is then possible to SAVE the display onto tape to be reloaded when required. The SCREEN$ command is responsible for this and can also be used to transfer the contents of the screen to a printer.

Low resolution output may be positioned on the screen using the PRINT AT command, which