



# E

## EAPROM

The *electrically alterable programmable read-only memory* is one of the newest types of semiconductor memory. To understand its operation, we must compare the EAPROM with other forms of memory. A normal ROM is mask-programmed, meaning that its contents are fixed during the manufacturing process. A PROM (programmable ROM) is like a blank ROM; a 'PROM burner' allows its contents to be programmed by the user, but once programmed these contents may never be changed. An EPROM (erasable PROM) has a quartz window on the chip's surface. Exposing this window to ultra-violet (UV) light will erase the contents and allow the user to re-program the device. EPROMs are used widely in development systems and may be used instead of ROMs, which are economic only when manufactured in thousands of units.

The EEPROM (electrically erasable PROM) is similar in operation to the EPROM, but uses electricity instead of UV light to erase the chip's contents. The EAPROM, however, allows individual memory locations to be altered, although writing information to the chip is considerably more complex, and hence slower, than reading information from it. EAPROMs are therefore used only in applications in which the memory contents change little and where these contents must be retained when the power is switched off.

## EDGE CONNECTOR

The *edge connector* is the simplest form of interface connection, and is a favourite among manufacturers of less expensive home computers. The contacts are printed onto the edge of the printed circuit board by using the normal etching process, and the PCB is then trimmed to allow the contacts to protrude by about one centimetre. Well-made edge connectors use gold-plated contacts, as copper oxidises when exposed to air and this can result in bad connections. More expensive machines dispense with edge connectors and use purpose-designed interface sockets such as DIN sockets or 25-way D-connectors.

## EDITOR

An *editor* is a program that allows the user to create and alter patterns of symbols. These symbols may be graphics, program listings or, in the case of a word processing editor, English text. Electronic editing relies on several basic functions: insertion and deletion of text, overwriting, etc. More sophisticated editors allow the same function to be performed in a variety of ways — the user may delete a character, a word, a sentence, a paragraph or a page, for example — and some incorporate a 'search and replace' function that allows any symbol, word or phrase to be replaced by another. A 'full-screen editor' permits alterations to be made at any position on the screen. The more common line-based editor

## Copy Editor

On the Spectrum, a copy of the line indicated by the cursor is edited at the bottom of the screen



requires the user to specify the line to be altered, and permits editing only on that line.

## ELECTRONIC MAIL

Communication is rapidly becoming the most important factor in business microcomputing — today's users rely increasingly on information that may be retrieved via the telephone network. One of the most popular off-the-shelf applications is *electronic mail*, which is a facility for sending documents and messages from one micro user to another. This requires that each user has a microcomputer (preferably with printer attached), a modem and an electronic mail software package. Short messages may be typed on the keyboard while the computer is on-line. To save on telephone charges, however, longer documents are usually prepared off-line by using a conventional word processing package. The communications utility then reads the finished file from disk or cassette and transmits it character by character.

## ELECTROSENSITIVE PRINTER

Popularly known as 'thermal' printers, *electrosensitive printers* are cheap to construct, quiet and relatively fast in operation. The major drawback with these devices is the special paper that is required; this is silver-coated and totally unsuitable for serious use as it is often difficult to decipher text printed on it. It is also considerably more expensive than plain paper. As a result of these limitations, electrosensitive printers are most often used as cheap devices for listing programs — a good example is the Sinclair ZX printer, which uses narrow rolls of paper giving only 32 characters per line.

Printed characters are built up from dots, but the moving pins of a conventional dot matrix printer are replaced by a solid-state array of needles, to which an electrical charge of several thousand volts is applied. The resulting spark burns off the metallic coating on the paper to leave a small black dot. The high voltage is not a problem as the system does not produce a large current and hence is not dangerous to the user.