ROMS ON THE SIDE

Chris Drage compares ROM socket systems from NMC and Viglen that provide plug-in Beeb expansion on a budget

O NE OF the most important peripherals to follow in the wake of the BBC micro is the sideways ROM socket board. A number of multi-socket boards have been available for a while now: ATPL, Sir Computers and Watford Electronics have all produced 12-socket boards. A problem associated with some of them is power drain on the host micro, for the Beeb wasn't designed to house such equipment. Another problem is that the physical limit to the number of ROMs available is 16. 'Sideways RAM' has been one answer to the problem, but this means an outlay of up to £45.

For those on a budget there's now another alternative. Both National Micro Centres and Viglen Computer Supplies have stepped in to provide a single exterior sideways socket into which ROMs/EPROMs are simply and quickly inserted. The former has opted for a zero insertion (ZIF) socket, while the latter has taken a more novel approach.

The Viglen socket is really a cartridge ROM edge-connector that is connected via a ribbon cable to an internal ROM socket. Each ROM/EPROM is housed within its own cartridge and simply slotted in when required.

I wanted to see how each system stood up in general use, so I put each in a primary school computer for a fortnight and allowed the children to use *Edword*, *Disc Doctor* and *Printmaster* for various tasks.

The ROM extension socket from National Micro Centres comprises an extension cable with sockets, a ZIF socket, two pieces of double-sided sticky tape and an 'ashtray' aperture cover (figure 1). The system is designed for ROMs/EPROMs to be effortlessly inserted without damage to their legs or to the socket connections. The system is a little more tricky to install but, following the simple yet adequate instruction sheet, it took only 10 minutes.

At the Beeb end a 28-pin socket fits into 1C 52, where Basic usually resides. The socket uses round pins, which are both strong and safe for the main board socket. I was very pleased to note that NMC had not opted for the large, square-pinned plugs that do so
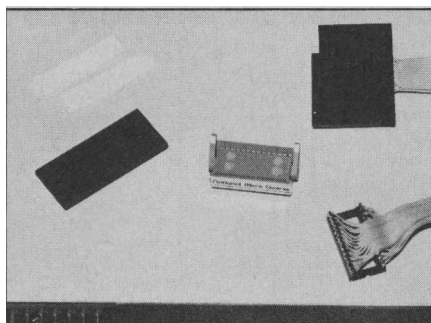

Figure 1. National Micro Centres' ROM extension socket system, consisting of extension cable with socket, Z!F socket, 'ashtray' aperture cover and sticky tape
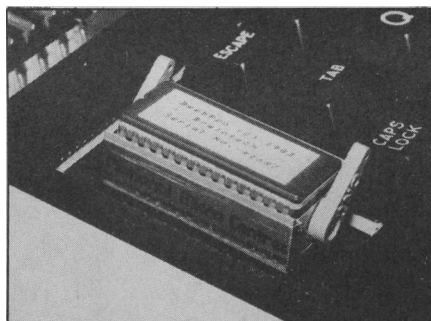

Figure 2. The NMC sideways socket installed. The board is attached to the underside of the keyboard cover with the sticky tape
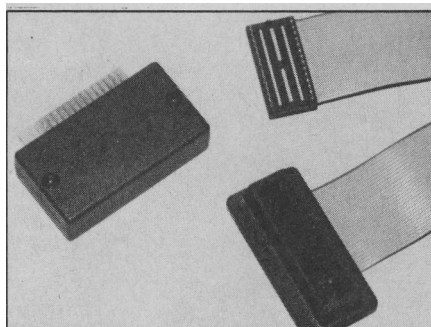

Figure 3. The Viglen cartridge ROM system, showing extension cable with socket and cartridge

much damage (remember the old OS 1.00 EPROM board!) To this a double ribbon cable is soldered and passes over the recessed area beside the power supply to the 'ashtray'. At this end a small board contains another 28-pin socket into which the ZIF socket will plug. Here the whole operation became rather amateurish.

The board is attached to the underside of the keyboard cover by double-sided sticky tape. It worked, but I found that after a while it became weak either due to rough treatment or the warm working environment. With the keyboard cover replaced the ZIF socket is plugged in and all is ready (figure 2).

Unlike the Viglen cartridge, the ZIF socket is not clearly marked as to which way the ROMs are to be inserted. The rule is implicit: keep the ROM's notch away from you. However, one teacher got it wrong and one 2764 EPROM was ruined. A clearly labelled socket would have avoided this.

In use the system did not always function with all firmware. It appeared to work with some EPROMs and not others. Unfortunately, the *EdwordROM* would not function at all, even after calling it with *FX 142,12, which should initialise any firmware in this socket. This problem is probably due to the fact that no additional circuitry is included to provide for data loss over the length of cable. Unfortunately, the computer must be switched off before a chip can be inserted/removed. Apart from the inconvenience it is yet another easily forgotten operation that could lead to the loss of an EPROM/ROM.

My overall impression of this system is not one of confidence. I was disappointed with quality of the ZIF socket and the presentation of the system.

The Viglen sideways ROM cartridge system comes solidly packed in a plastic case and comprises a ROM extension cable and socket, an empty cartridge, a cartridge storage tray and various covers for the socket, edge connector and the Beeb's 'ashtray' (figure 3). Following the simple instruction sheet Viglen provides, installation was easy and non-traumatic. The computer end of the ribbon cable is provided with a specially tooled 28-pin plug that is simplicity itself to insert, thanks to the excellent cable connection and its strong rounded pins. The ribbon cable proved long enough to run just under the keyboard edge and emerge by the loudspeaker and it didn't foul any components. The edge connector is provided with two flanges, each of which engages within the 'ashtray' slot to the left of the keyboard (figure 4). This results in a surprisingly strong and neat socket. Five minutes

and the job was complete.

Each ROM is now ready to be installed in its 60 x 20 x 30mm cartridge (figure 5). This is achieved by removing two screws from the cartridge top and pushing the ROM into a 28-pin socket mounted on a small printed circuit board. Correct orientation is aided by the suitable markings on the base-plate. Each cartridge includes additional components to allow for any losses across the data cable. This adds to the production costs but Viglen has made a wise decision to include this feature. As a result, the three cartridges used by my class of ten-year-olds performed faultlessly over the two-week period, passing the standard 10-year-old ' dropping', 'standing-on' and 'handling' tests.

Two features of the system I particularly like are the fact that it takes no additional power from the BBC micro in its operation and that cartridges may be inserted or removed with the micro switched on and working.

In case the owner wants to remove the socket from the computer, Viglen provides a blank plate to cover the aperture. This clips into the 'ashtray' and is unobtrusive. As the user's cartridges grow in number, each may be stacked in the storage tray.

Overall, this is a very successful system that met with the complete approval of children and staff.

Both the NMC and Viglen extension sockets provide a cost-effective alternative to multi-socket boards, if you don't mind swapping firmware in and out of the computer as required.

A problem of using a sideways socket system in a school environment is that cartridges/ROMs can get misplaced, and the possibility of theft must also be taken into account when using these systems in a 'public' environment. These problems however, must be weighed against the advantage of having expensive firmware quickly and easily available to swap among any number of suitably fitted computers.

Having used both systems over the month, I can recommend only the Viglen ROM cartridge system for

REVIEW SUMMARY CHART

FEATURE	VIGLEN CARTRIDGE ROM SYSTEM	NATIONAL MICRO CENTRE ZIF SOCKET
Design & construction	4	3
Installation	4	3
Performance & reliability	5	2-3
Insertion & removal of ROMs	5	3
Documentation	4	4
Application	– education – home user – laboratory – small business	– home user – laboratory
Other peripherals	– cartridge storage system – switchable 4 × cartridge (board planned)	– none
Value for money	4	3

KEY: 5 . . . *Excellent*   **4** . . . *Good*   **3** . . . *Satisfactory*   **2** . . . *Poor*   **1** . . . *Very bad*
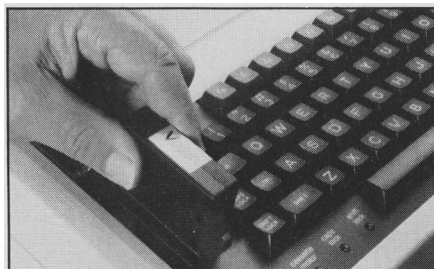

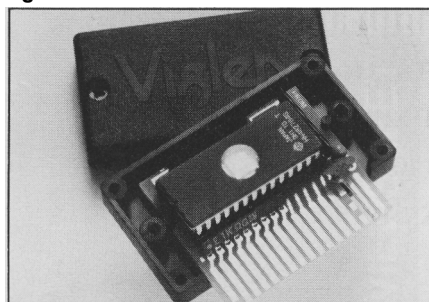**Figure 4. !nserting a cartridge into the Viglen socket**

Figure 5. Inserting a ROM into the cartridge

school use. Each element is well designed, strongly built, and functions faultlessly. The risk of handling ROMs/EPROMs is too great to be a viable proposition: the extra expense of each cartridge must be measured against this. Also, as the ZIF socket cannot be relied on to work with all ROMs/EPROMs, its application must be limited.

For the home user, each of these ROM sockets appears to be a useful answer to the problems posed by the plethora of ROM-based software now available. Obviously, the NMC ZIF socket means that ROMs/EPROMs may be quickly and conveniently inserted and removed. However, the onus is on the user to provide safe handling and storage for his/her firmware. The problem is not so acute with the Viglen system as each ROM is well and truly protected. Whether the cartridge system is worth the extra cost is up to the user to decide.

DATASHEET

Product	Sideways ROM cartridge socket	**Product**	Sideways ROM socket
Manufacturer	Viglen Computer Supplies	**Manufacturer**	National Micro Centres
Socket type	Edge connector	**Socket type**	Zero insertion force (ZIF) socket
EPROMs supported	2764 and 27128 EPROMs	**EPROMs supported**	2764 and 27128 EPROMs
Cable length	470mm	**Cable length**	420mm
Special requirements	ROM cartridges	**Special requirements**	None
Price	Socket: £19.95 inc. VAT Cartridges: £6.95 inc. VAT £4.95 each for 10 cartridges	**Price**	Socket: £19.95 inc. VAT
		Review copy from	National Micro Centres, 36 St Peters Gate, Stockport SK1 1HL
Review copy from	Viglen Computer Supplies, Unit 4, Trumpers Way, Hanwell W7 2QA.		