

Game choice

Hardware Memotech Speculator
Price £39.95 Supplier Memotech Ltd, Station Lane Estate, Witney, Oxon.

About this time last year Spectrum emulators were the in thing. They were reported as 'soon being available' for micros as diverse as the QL and the Commodore 64. Unfortunately all these wonderful devices had one thing in common - they were about as real as Bruce Forsyth's head of hair. Now, suddenly and without hype, Memotech have announced that they have one of the beasts, a real live emulator, one that exists independent of a marketing director's imagination. The other amazing thing about it is that it works very well.

For your money you get two essential ingredients. There is a compact little device that plugs into the side of the computer, containing a Rom, some Ram for storing the results of the keyboard reading routine, and some other bits. You also get a tape containing a program that allows you to run 20 Spectrum games (you have to buy the actual games yourself of course). These range from old chestnuts such as *Spectipede*, which you should be able to pick up for about a quid, right up to some of the more recent better releases such as *Atic Atac*, *Tornado*, *Low Level* and *Starion*. Further tapes are planned at about £4 for the necessary bits to run ten more games. Now that the system has been implemented, they expect to be able to keep up with the most recent Spectrum hits.

To run a game you simply make your choice from the menu, load the Spectrum tape in, to the accompaniment of a specially recreated familiar flashing blue and yellow border, and off you go. Choices given in the game for Kempston joysticks, etc, should be avoided but all games work with the MTX cursors and joystick as well as the keyboard. No changes at all are made to the original program tape.

To explain briefly how it works, the software does the easiest half of the emulation. First of all it compensates for

the various weird loading systems so common these days. Secondly it ensures that any calls that the game makes to the Spectrum Rom go to a routine, placed at the same memory address, that for copyright reasons is totally different to Sinclair's code but produces the same result on the MTX hardware.

The game code then carries on running as though it were on a Spectrum, controlling the internal logic, etc. The menu program also sets up the best colours to use for each game from the MTX's wider range.

The hardware pack reads the Memotech keyboard to see if the appropriate keys or joystick have been used and passes the information to the game by intercepting calls that would have gone to the Sinclair keys. It also controls screen handling which is perhaps the most complicated bit. The code that would be the Spectrum screen Ram is

ness is there if you look for it, most of the time you hardly notice at all.

Games which restrict all the action to a certain fraction of the screen, eg, *Starion* can be made to selectively refresh the moving parts at a faster rate and the relatively static parts more slowly to give a better overall effect. Any sound produced from Rom calls, ie, simple beeps, can be produced but those that rely on special effects caused by sending a signal to the sound chip many times a second are not worth reproducing because again the frequency falls dramatically. Still, given the cleverness of it all, Tony Brewer has no reason to feel anything but proud.

Because there is so much to fit in as well as the 48K Spectrum Ram the emulator will not run on the 48K MTX - only 64K and up. Also certain games cannot be made to run - those which are made up of large amounts of Basic, those that



held in the memory, but has to be presented in a very different form to make sense to the MTX's video chip. The Rom pack sends interrupts to stop the game running, reads the Spectrum screen, translates it into values that produce the same on the Memotech screen, and sends the new data to the video chip. Fortunately pixel resolution is the same so the graphic details are reproduced exactly.

The obvious drawback to this system is that it all takes time - it means that the game runs slightly slower, and that the rate of the screen updating falls to about a quarter of what it was originally, making movement less smooth. Tony Brewer who designed the package seemed almost apologetic for this as he explained it but the simple fact is, whilst the jerki-

make so many calls to the Rom that it is impractical to try to substitute all the routines, and certain games that seem to take exception to the interrupts.

In my experience the MTX computers are regarded with a lot of respect from software house, and serious users alike. In particular they have the potential to be expanded into a very powerful system indeed with excellent networking, CP/M, 1 megabyte discs and more. One of the major reasons it didn't succeed as a home computer was that, like Oric, it was caught in a vicious circle of no big sales because of limited software and, no rush to write software because of limited sales, etc. This emulator, together with recent price cuts, could solve a lot of the problems at a single stroke.

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