IT'S FASTER VIA THE SILICON DRIVE

. . . says Malcolm Banthorpe

Sideways RAM board (128k), Solidisk Technology, 17 Sweyne Avenue, South-end-on-Sea, Essex SS2 5JJ (0702) 354674, £39.95 (inc VAT)

IN HIS review of the 16k version of Solidisk's sideways RAM system (February issue), Vincent Fojut talked of its exciting potential for expanding the BBC miero, and explained that the board itself could be expanded in two stages to 32k and 128k. This largest version can also be bought as a complete unit which offers significant additional facilities.

Here are my experienees with the 128k version.

As the previous review pointed out, inserting wire terminals into the CPU socket alongside the CPU pins seems a little crude, and for me this proved the most tricky part of the installation. With the 128k board another five connections have to be made to the 6522 VIA and another ehip. However, at least the need for permanent modification to the circuit board is eliminated and the system has proved reliable.

Used straightforwardly, the 128k board gives eight paged blocks of RAM, each of 16k, into which can be loaded sideways ROM-type software—or you can assemble your own machine-code routines directly into this area, leaving the main memory free for Basic programs and screen memory.

What really distinguishes the 128k unit is that software is supplied that enables this extra memory to behave as a 'silicon disc'. In this mode, 100k is available. The software loads a modified copy of the DFS into sideways block 8. For this purpose you must have Acorn DFS 0.90 already installed in the machine and it can be assumed that other DFS systems will not be suitable. One 16k block (sideways location 15) is still available for sideways software.

The rest of the sideways RAM now behaves for most purposes as if it were a 100k disc drive—only faster. All the normal DFS commands are recognised and obeyed, the silicon disc appearing as drive 1. If you already have a drive 1, an alternative piece of software can be loaded to make the silicon appear as drive 4.

Three new DFS commands are incorporated into the modified DFS: *FORM40 (or *FORM80) formats 40 and 80 track discs; *VERIFY, according to the instructions, or *VFY in the software as received, verifies either the silicon drive or a conventional floppy; and *DCOPY copies the contents of the disc in drive 0 to drive 1 or vice versa. This last command behaves almost the same *COPY *.* to copy all the files from one disc to another, except that if you try to copy from the silicon drive to an unformatted disc the new disc will automatically be formatted first.

*DCOPY could be the most useful command for owners of a single conventional drive, as it enables backup copies to be made rapidly without the dise swapping normally required when using *BACKUP or *COPY *.* with a single drive. With the Solidisk board installed, one simply *DCOPY' s the floppy into the silieon disc in one operation and *DCOPY's everything back onto a new disc in a second single operation.

The average file transfer speed is claimed to be 40k per second — up to 15 times the speed of a floppy. The speed is certainly apparent when loading program and data files, especially as no time is taken for the disc to get up to speed. Table 1 shows how the speed of the Solidisk system compared with my single-density 40-track floppy drive in a number of typical operations.

Operation	Floppy disc	Solidisk
*LOAD 12.5k program	2.86 secs	0.24 secs
Open data file and store 1000 6-character strings	19.69	6.01
Open data file and read 1000 6-character strings	19.49	4.78
*LOAD mode 1 screen (20k)	3.24	0.32
Store 1000 bytes using BPUT	4.75	1.66
Read 1000 bytes using BGET	4.11	1.56
Load Wordwise file of 2250 words	29.5	6.8
*BACKUP floppy to Solidisk: 20.8 seconds		
*BACKUP Solidisk to floppy: 22.7 seconds		

Table 1. How the Solidisk 128k board compares for speed with a 40-track floppy disc drive

These timings include the time taken for the floppy to get up to speed and show that, while the speed difference is not always 'up to 15 times' as great, there's always an advantage.

The speed of storing single bytes using BPUT was also compared with the time taken for a Basie program to store 1000 bytes directly to the main memory. Here the time was 0.98 seconds for direct storage—just over half the time taken to store similar information on the Solidisk system. This indicates that, though it is not yet possible to run a Basic program while it is still resident in sideways RAM, a large program could use data files on the Solidisk as an alternative to arrays without much loss of speed.

As well as the silicon disc program, other useful utilities were supplied on disc. Most of them involve the use of machine code routines, but in many instances source code is supplied. Solidisk Technology offers software updates at just £2 for a new disc.

Menu is a useful program to include on any floppy disc to be used alongside the Solidisk system. It displays the contents of all 16 potential sideways ROM/ RAM locations, plus the catalogue of the floppy drive and the silicon disc (if the sideways RAM has previously been booted into this role). Any file shown can be loaded with a single keystroke.

Among the other utilities supplied:

Silexicon, three programs which constitute a fast spelling checker for any text file on floppy disc. A 4.5k machine code program plus a dictionary file and a 'tree table' are loaded into the silicon drive. The dictionary initially holds 5000 words and may be extended by the user up to about 15,000 words.

Word64, a utility for creating Word-wise files up to 64k in length as opposed to the normal 24k limit. This is achieved by holding only a 16k 'window' to the complete text file in the main memory area, the rest being held on silicon disc.

Buffer appears on the disc but was not documented in the instructions. It turns out to be a print buffer that sends any text to be printed rapidly to the buffer first, releasing the computer for use while the printer is at work.

If you are using a single dise drive then the Solidisk 128k system is worth considering as an alternative to a second drive. Its price compares with that of a single 40-track drive and it offers a number of advantages.