

ELBUG

SUPPLEMENT TO BEEBUG

VOLUME 2 ISSUE 8

News News News News News News Ne

ACORNSOFT DROPS PRICES

Now that the Electron has come down in price (to £129) Acornsoft has made the commendable move of reducing the price of Electron software. Although excellent, Acornsoft titles have always been on the pricey side. Now most cassettes (56 titles in all, mostly games) will retail at £6.99 (Elite stays expensive). Acornsoft can be found on 0223-316039.

ELK ROM

Slogger Software has proved its commitment to the Electron with a new item of Rom software. ElkMan provides ROM management facilities for the Electron, enabling ROMs to be disabled to avoid command clashes, memory usage, and so on. ElkMan costs £17.50 from Slogger on 0634-811634.



GH SCORES ELBUG HIGH SCORES ELBUG HIGH SCORES ELBUG HI

Here are the latest additions to the ELBUG high scores table. If you have bettered any of these scores, or you have simply done wonderfully on a new game, don't keep it to yourself. Drop us a line and see your name in print. Fame and fortune is but a letter away.

Supplier	Game	Score	Player
ACORNSOFT	Arcadians	10320	D.Wilson
ACORNSOFT	Snapper	128850	J.Evans
ELBUG MAG	Scrumpy	61905	G.Bains
MICRO POWER	Ghouls	2258	C.Dearman
POSTERN	Pengwyn	10600	A.Morland
SUPERIOR SOFT	Percy Penguin	4950	G.Smith
SUPERIOR SOFT	Mr.Wiz	65410	G.Smith

AGAZINE CASSETTE ELBUG MAGAZINE CASSETTE ELBUG MAGA

The magazine cassette, this month, has many offerings to tempt the programmer's palate. All the programs from this month's mag - 3D text display, Jigsaw, View printer driver generator, the several examples from the Workshop and Beginner's articles, and the excellent game Hatrace are all there along with the short Water Skiing game from this ELBUG supplement. All for just £3.00 + 50p p&p.

Your Guide To BEEBUG

There no changes to be made to any of the programs in this month's BEEBUG, but a few general comments on Beeb program conversion may prove useful.

Beeb programs sometimes fail to run on the Electron because of the Beeb's mode 7 and extra sound facilities. However, conversion rarely proves very difficult.

The Beeb's mode 7 display is of the same format as mode 6 but with a full range of colours and crude graphics. Mode 7 is not available on the Electron, however the Electron defaults to mode 6 when it encounters a MODE 7 command. So BBC micro programs that include a mode 7 display will therefore run on the Electron but often with a corrupted (and monochrome) display.

The Beeb has three sound channels and control over the volume of notes. Electron Basic includes all the SOUND and ENVELOPE parameters that are used in the BBC micro even though several have no effect. This means that Beeb programs making full use of sound will still run on the Electron unaltered, though not, of course, producing the full effect.

The other major difference between the Electron and the BBC micro is speed. The Electron is much slower and particularly slow in modes 0, 1, and 2. BBC micro programs often benefit from a change of mode (admittedly, with a loss of some colours) when running them on the Electron. The changes needed will be given in this ELBUG supplement.

3D TEXT

Want a title screen for your latest game that will do justice to the action? Look no further. Fascinating and useful 3D effect displays are possible with this program and it will work perfectly on the Electron without any changes.

OXFORD PASCAL

Yet another version of Pascal for the Beeb rears its head. Unfortunately, this version is not available for the Electron. Pascal fans will be pleased to hear,

however, that Acornsoft's ISO Pascal cartridge for the Electron and Plus 1 is now available, after manufacturing difficulties, for £49.80.

ACORNISOFT REVS

Acornsoft hasn't released a version of Revs for the Electron (more's the pity) but, as with Elite, one may be on the way.

JIGSAW

One of the Electron's major features is its graphics capability. This program enables you to turn any of your masterpieces into a challenging puzzle. The program works perfectly on the Electron without modification.

GRAPHICS TABLETS

None of the three graphics tablets looked at here will operate on the Electron.

GAMES REVIEWS

Three of this month's batch of games are available for the Electron. 'Brian Jacks Superstar Challenge' and 'Blitzkrieg' are both available in versions that work on both machines and 'Magic Mushrooms' can be bought in an Electron format for £11.95.

LETTER QUALITY

The Ibico LTR-1 printer makes a very good printer for the Electron owner with a Plus 1 or one of the other printer interfaces available.

BEGINNERS START HERE - More about Logic

Peter Lewis's article on logic last month was so useful for Beeb and Electron owners alike that we just had to ask for a follow up. Here it is.

GENERATING A PRINTER DRIVER FOR VIEW

Plus 1 owners with a View cartridge will find this article and program invaluable for getting the most out of their printers

FILE HANDLING (Part 4)

Last month Geoff Bains introduced a multipurpose card index program. This month some of the workings of the program are revealed.

Last month's 'Cardbox' program operated on the principle that all records are contained within the Electron's memory. This is necessary with a cassette system because of the impossibility of true random access.

The records are stored by the program on tape (PROCsave) in a simple format. The first item stored is a numeric variable (records%) representing the number of records. The second is the number of fields (fields%) in each record in the file. There follows the titles of all the fields, stored as a number of strings. These are held in memory as the first entries of the array, A\$(,). The rest of the stored file comprises the data itself

MICROS Record 2	
Model	Electron
Make	Acorn
Price	£129
RAM	32k
No. cols	8
Max. res	640 x 256
N next record	P preceding record
D delete record	A add record
C change record	S sets record no.
M main menu	

SINGLE DRIVE DISC BACKUP

Plus 3 owners will find some interest in the workings of this short utility but as the Plus 3 drive is single sided it won't prove that useful.

ACCELERATOR

Computer Concepts have no plans for releasing an Electron version of this Basic compiler.

ADVENTURE GAMES

Neither of the adventure games that the Dungeon master has selected this month are available for the Electron.

GRAPHICS COMMANDS FOR MODE 7

Naturally the Electron, bereft of a mode 7 display, will not find much use for this program.

WORKSHOP - TECHNIQUES FOR CIRCLES

Drawing fast circles is fundamental to many graphics applications. BBC Basic is sadly lacking a fast built-in circle routine. This month's Workshop looks at several ways of approaching the problem, all of them equally applicable to ELBUG members.

BOOK REVIEWS

Some of this month's selection of books will appeal to ELBUG members.

'Graphics for Children' and 'BBC Micro Wargaming' are both totally Elk compatible and most of 'BBC Micro Advanced Programming' will also find favour with Electron owners.

EQU FUNCTION FOR BASIC I

All Electrons use the Basic II that includes EQU functions so there is no need for their imitation.

SOFTWARE COMPATIBILITY ON THE B+

ELBUG members thinking of upgrading to the BBC model B+ will find this summary of its compatibility with existing software useful.

HATRACE

This exciting two player game works perfectly on the Electron. As it is in mode 5 anyway, there is only a very slight speed advantage of the Beeb version and no changes needed.

HINTS

The following hints are relevant to ELBUG members.

VALIDATING GET FUNCTION
SLOW LISTINGS
LINE NUMBER DECODING

stored as a series of strings. These are stored in memory as the rest of the array `AS(,)`.

A glance at the procedure, `PROCsave`, will reveal all on the saving methods.

`Cardbox` has three options in its main menu (plus the fourth option of leaving the program). The second two options (view a file or search a file) can either operate on the file loaded into memory at the time or on a previously stored, specified, file. The presence or absence of a filename (`F$`) in memory is tested in lines 200 and 210 and reveals if a file is already loaded into the machine.

If there is no filename stored (`F$=""`) then a filename is input, the file is loaded from cassette and the data arrays filled.

Both the view and search options make use of the procedure, `PROCshow`. This is a generalised procedure that displays the contents of one record (that is the contents of `AS(r%,)`, where `r%` is the record number) on the screen. If the flag, `options%`, is set then the list of options (next record, delete record, etc.) is also displayed.

The view option of the main menu simply displays each of the records using this procedure as the options dictate or until the end of the file is reached (`r%=records%`). The options are used to hop around the file, back or forth or to a particular record, as the user wants. The search option is more complicated. It uses the `PROCshow` procedure to display the records in which it finds a match. The method of looking for matches for the search item is quite complex. So that the program knows whether there are any further matches to be displayed at any point, the search has to operate 'in advance' of the display. Take a look at `FNsearch`.

This steps through the records from the specified point and returns the record number (`r%`) of the first record in which a match for the search item is found. `PROCsearch` uses this function to look through the whole data array for the first match. If no match is found after a single search of the entire data array, then a suitable message is printed (line 2320).

If a match is found a search for the next match is made. When that is found the first match is displayed (using `PROCshow`) along with a message that another match is ready for viewing. The process of searching ahead of the display is repeated until no further matches are found. Then the last match is displayed along with a message to say that that is the lot (line 2400).

Most of the rest of the procedures in this program are connected with moving the record pointer around the data for the second option - to view the file. `PROCrecord` simply changes the record pointer, `r%`, to point to the required record so that this record is displayed next time that `PROCshow` is called. `PROCdelete` removes the specified record and moves all the rest up so that is no gap. The total number of records, `records%`, is then reduced by one. `PROCadd` does the reverse of this to insert a record at any position or it can simply add the new record onto the end of the file, as desired.

Both `PROCadd` and the main menu option to create a new file, use another generalised procedure, `PROCentry`, to input a new record. This procedure is used to initially fill up the data arrays. Each field of the specified record is prompted for and the input string stored away in the array, `AS(,)`.

The `Cardbox` program is not the final word in database programs, by any means. As it stands it cannot cope with field items longer than about ten letters. No error trapping is attempted for such travesties either. This is one area in which the program could be improved. In addition all the data items are simply stored as character strings. You might like to change this so the items can be stored as numeric values, strings, or even dates or amounts of money. This would require a more complex setting up procedure and a longer program. However, it would mean that more complex searches are possible and that some useful sorting could be included.

A database program such as this is only an example of what can be done. The complexities possible and the potential use of such a program are limited only by your imagination.

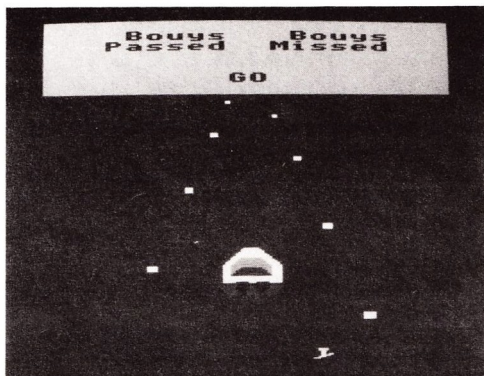
WATER SKIING

All the thrills of real life water skiing without ever getting your feet (or your computer) wet. That's what this Electron program from Richard Lewis offers.

In this special ELBUG game you have to guide the intrepid water skier around the outside of the bouys in a zig-zag course. The speed of the boat towing the skier is fixed at the start of the game and it's all down to your timing of the turns.

This simple game provides quite a challenge and shows off the excellent graphics of the Electron to the full. Both character animation (the skier) and that achieved with the VDU19 command (the bouys) are used to provide an all action game.

Be sure to save the program once you have typed it in, before you run it.



```

10 REM Program Water-Ski
20 REM Version E0.1
30 REM Author R. Lewis
40 REM ELBUG May 1985
50 REM Program subject to copyright
60 :
100 ON ERROR GOTO 2040
110 :
120 MODE2:VDU23,1,0;0;0;0;
130 PROCchar
140 REPEAT
150 PROCinit
160 PROCinstr
170 REPEAT:PROCrun:UNTIL TI%>44
180 COLOUR4:PRINTTAB(9,5)"GO";
190 MT%=TIME:REPEAT:PROCrun:PROCman:UNTIL TI%>148
200 PROCresult
210 UNTIL FALSE
220 :
1000 DEF PROCinit
1010 TI%=1:SM%=0:AX%=0:OAP%=0
1020 MT%=0:BT%=0:TIME=0:MI%=0:PS%=0
1030 VDU19,5,7;0;19,2,6;0;
1040 FOR I%=6 TO 15:VDU19,I%,4,0,0,0:NE
XT
1050 BS%=20:SO%=1
1060 ENDPROC
1070 :
1080 DEF PROCtrap(X1%,Y1%,X2%,Y2%,DX%)
1090 MOVE X1%,Y1%:MOVE X1%+DX%,Y2%

```

```

1100 PLOT 85,X2%,Y2%
1110 MOVE X1%,Y1%:MOVE X2%+DX%,Y1%
1120 PLOT 85,X2%,Y2%
1130 ENDPROC
1140 :
1150 DEF PROCb(LR%)
1160 XB%=640+(TI%*(TI%/6)+48)*LR%:YB%=800-TI%*(TI%/3)
1170 PROCtrap(XB%-TI%/3,YB%,XB%+TI%/3,YB%+TI%/3,0)
1180 ENDPROC
1190 :
1200 DEF PROCrun
1210 BE%=TIME-BT%:IF BE%>BD% THEN BT%=TIME ELSE ENDPROC
1220 VDU19,6+(TI%+3)MOD10,7;0;
1230 VDU19,6+(TI%+2)MOD10,4;0;
1240 IF TI%<50:GCOL0,6+(TI% MOD10):PROCb(-1):GCOL0,6+(TI%+5)MOD10:PROCb(1):GOTO 1300
1250 COLOUR4:COLOUR130
1260 IF TI% MOD10<>6 GOTO 1280
1270 IF AP%<-7 THEN PS%=PS%+1:PRINTTAB(5,4);PS%; ELSE MI%=MI%+1:PRINTTAB(13,4);MI%;
1280 IF TI% MOD10<>1 GOTO 1300
1290 IF AP%>6 THEN PS%=PS%+1:PRINTTAB(5,4);PS%; ELSE MI%=MI%+1:PRINTTAB(13,4);MI%;
1300 TI%=TI%+1:ENDPROC
1310 :
1320 DEF PROCchar
1330 VDU23,230,60,60,24,24,216,120,28,7
1340 VDU23,231,60,60,24,24,27,30,56,224

```

```

1350 VDU23,232,24,60,60,60,24,126,126,6
0
1360 R$=CHR$17+CHR$1:Y$=CHR$17+CHR$3
1370 E$=CHR$32+CHR$11+CHR$8+CHR$32
1380 ML$=Y$+CHR$230+CHR$11+CHR$8+R$+CHR
$232
1390 MR$=Y$+CHR$231+CHR$11+CHR$8+R$+CHR
$232
1400 VDU23,240,0,0,0,252,252,252,252,25
2
1410 VDU23,241,0,0,0,63,63,63,63,63
1420 VDU23,242,0,0,0,126,126,126,126,12
6
1430 BR$=CHR$17+CHR$9+CHR$241+CHR$11+CH
R$8+CHR$17+CHR$8+CHR$242
1440 BL$=CHR$17+CHR$14+CHR$240+CHR$11+C
HR$8+CHR$17+CHR$13+CHR$242
1450 ENDPROC
1460 :
1470 DEF PROCman
1480 ME%=TIME-MT%:MT%=TIME
1490 COLOUR132
1500 IF INKEY-98 THEN SM%=SM%-SI%
1510 IF INKEY-105 THEN SM%=SM%+SI%
1520 SM%=SM%*0.9-AX%DIV12
1530 AX%=AX%+SM%*ME%DIV40:AP%=AX%DIV64:
IF AP%>9 THEN AP%=9 ELSE IF AP%<-10 THEN
AP%=-10
1540 IF SM%>0 THEN P$=MR$ ELSE P$=ML$
1550 PRINTTAB(10+AP%,30);P$;
1560 IF AP%=OAP% THEN GOTO 1600
1570 IF OAP%=-7 AND TI%>49 THEN ER$=BL$
ELSE IF OAP%=6 AND TI%>49 THEN ER$=BR$
ELSE ER$=E$
1580 PRINTTAB(10+OAP%,30);ER$;
1590 MOVE 640,250:GCOL3,1:PLOT21,OAP%*4
8+664,100:MOVE 640,250:PLOT21,AP%*48+664
,100
1600 OAP%=AP%
1610 ENDPROC
1620 :
1630 DEF PROCboat
1640 GCOL0,1:PROCtrap(540,250,744,310,0)
):PROCtrap(540,310,674,370,70)
1650 GCOL0,5:PROCtrap(570,220,740,250,-
30)
1660 GCOL0,3:PROCtrap(552,262,728,310,0)
):PROCtrap(552,310,658,358,70)
1670 GCOL0,2:PROCtrap(580,310,670,330,3
0):PROCtrap(580,280,700,310,0)
1680 GCOL0,0:PROCtrap(580,280,670,300,3
0)
1690 GCOL0,0:PROCtrap(592,240,628,260,0)
):PROCtrap(656,240,688,260,0):PROCtrap(6
02,220,618,240,0):PROCtrap(666,220,682,2
40,0)

```

```

1700 COLOUR132:PRINTTAB(10,30);MR$;
1710 MOVE 640,250:GCOL3,1:PLOT21,OAP%*4
8+664,100
1720 ENDPROC
1730 :
1740 DEF PROCresult
1750 SOUND &13,0,1,10
1760 COLOUR128:CLS:COLOUR1:PRINTTAB(4,1
)"SCORE SHEET";:COLOUR3:PRINTTAB(4,2)"==
=====";
1770 COLOUR2:PRINTTAB(0,8)"You Passed "
;PS%;" Bouys";
1780 PRINTTAB(0,12)"You Missed ";MI%;"
Bouys";
1790 COLOUR1:PRINTTAB(0,16)"Boat Speed
";BS%;" knots";
1800 IF MI%=0 THEN COLOUR3:PRINTTAB(6,2
0)"WELL DONE";TAB(5,22)"SUPER SKIER";
1810 COLOUR1:PRINTTAB(0,28)"RETURN to C
ontinue";
1820 REPEAT:UNTIL INKEY-74
1830 ENDPROC
1840 :
1850 DEF PROCinstr
1860 *FX15,1
1870 VDU19,4,0,0;:COLOUR132:CLS
1880 COLOUR1:PRINTTAB(4,1)"CONTROLS";:C
OLOUR3:PRINTTAB(4,2)"=====";:COLOUR2:
PRINTTAB(4,4)"Z - LEFT";TAB(4,6)"/ - RIG
HT";TAB(4,8)"S - SOUND ON/OFF";
1890 PRINTTAB(0,10)"SPACE - Boat Speed"
;:COLOUR1:PRINTTAB(0,14)"RETURN to Conti
nue";
1900 PROCboat
1910 REPEAT
1920 IF INKEY(5)=32 THEN BS%=BS%+2:IF B
S%>30 BS%=20
1930 COLOUR5:PRINTTAB(3,17)"Speed ";BS%
;" knots";
1940 IF INKEY-82 THEN SO%=1-SO%
1950 UNTIL INKEY-74
1960 SOUND &13,-15*SO%,BS%*2-40,255
1970 BD%=1200 DIV BS%:SI%=10+BS%
1980 VDU28,0,17,19,0,12
1990 VDU28,0,6,19,0,17,130,12,19,4,4;0;
2000 VDU28,0,31,19,0
2010 COLOUR4:COLOUR130:PRINTTAB(4,1)"Bo
uys Bouys";TAB(3,2)"Passed Missed";
2020 ENDPROC
2030 :
2040 ON ERROR OFF
2050 MODE6
2060 IF ERR<>17 REPORT:PRINT " at line
";ERL
2070 END

```

ACORN'S PLUS 3

After last month's review of the Cumana disc system for the Electron, Alan Webster takes a look at Acorn's Plus 3 interface to see if it really is the best thing for the ELBUG member impatient with cassettes.

The Plus 3 disc drive expansion unit will convert your Electron home computer into a serious machine with real work potential. It is also a boon to the hobbieist Elk owner too, if you can afford the £299 it will set you back.

The Plus 3 gives you a single 320K, 3.5 inch disc drive. It plugs onto the rear of the Electron via the edge connector and provides a connector for further expansion (e.g. the Plus 1) and another connector for a further drive.

The unit is arranged in an L shape. The interface covers the length of the Electron at the back with the drive itself protruding down the right hand side. The Plus 3 has its own power supply to cater for the requirements of both units. There is also a rather smart 110 page A5 User Guide to help you get the most from the Plus 3.

Also included in the package is a 'Welcome' disc containing various utilities (a disc formatter, a verifier, a backup program and a selective copier) and other programs. These are various offerings from the Welcome cassette such as Biorhythms, Marslander, Piano and Gomoku. The Welcome disc also has enough space to experiment with loading and saving, but the User Guide wisely suggests that you buy at least two spare discs - one to backup the Welcome disc and one to use for your own purposes.

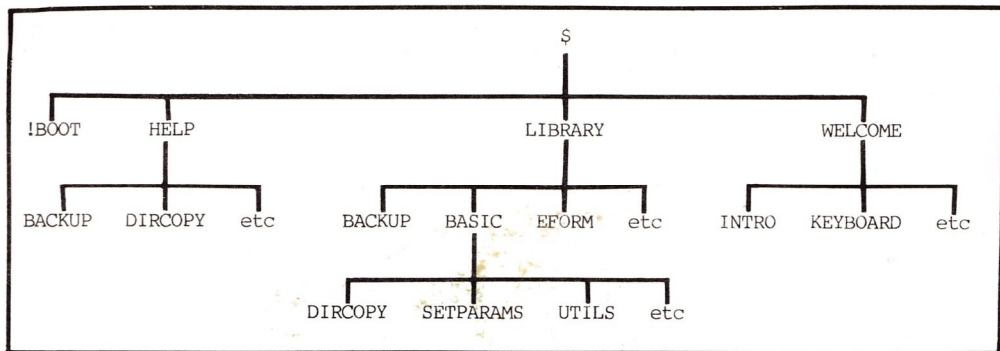
The Plus 3 uses the same disc controller chip as the new BBC model B+. As well as the hardware, a Disc Filing System (DFS) on ROM is also required to look after the disc drive in the same way as the Operating System looks after the rest of the machine. The Plus 3 uses Acorn's Advanced DFS (ADFS) which is a cut above the DFS used on the BBC micros.



DIRECTORIES AND FILE HIERARCHY

Most people who have used an Electron will be familiar with files. A file can be anything from a Basic program to a piece of text. The advantage in having a file on cassette or disc is that you can switch the Electron off and the file will still be available for later use. The main advantages of disc over cassette are that you can easily find out what files are on a disc (just use the command *CAT), and that loading and saving operations are very much quicker. When you need to find a file on cassette it involves starting at the beginning of the cassette and searching all the way through until the file is found. On disc, the ADFS knows exactly where to find the file (by looking up its name in a directory) and can locate and load it within a couple of seconds.

A directory is a file containing the names of a group of other files on the disc. If, for example, there are four people sharing a single disc, each person's programs can be saved under their own directory. A single directory can contain up to 47 files and can even contain other directories. This is what is meant by file hierarchy and is an area where the Electron with a Plus 3 scores well over the BBC micro.



An example of file hierarchy is the Welcome disc itself. A catalogue of this disc reveals just four files, !BOOT, HELP, LIBRARY, and WELCOME. These are the files in the default directory, \$. Typing *DIR LIBRARY and then *CAT again reveals the further files in that directory. One of these, BASIC, is yet another directory itself, in which there are yet more files (DIRCOPY, UTILS, etc.).

ANOMALIES

Because of the high speed at which discs operate it is not possible to transfer data from memory to disc and vice versa without suspending certain other functions of the Electron. The outcome of this is that while disc operations are being executed, the cursor will stop flashing, colours stop flashing and things like sound will stop working for a short time. Most of these 'quirks' are not serious, but one function suspended is the Basic TIME function which therefore gives misleading results with heavy disc usage.

Another point to make is that if the Electron is in any of the modes, 0 to 3, then the screen is momentarily blanked out when a disc access takes place because the Electron has not got the time to update and refresh the screen whilst reading or writing to disc. Although, again, this is not too important, the flickering of the screen is distinctly annoying.

PLUS 3 vs. CUMANA

In last month's issue of ELBUG (Vol.2 No.7) we reviewed the Cumana disc interface and although it is perhaps unfair to compare the two (the Cumana is an interface

alone requiring the purchase of a separate disc drive) there are a few pointers which should help you to choose the best for your needs.

The Plus 3 is not just an interface but comes supplied with a disc drive. Should you go for the Cumana interface you will need to purchase this as a separate item. However, the latter, at £115, is cheaper even allowing for this (the interface and drive should cost under £250). Cumana's interface also allows the use of a single 5.25 inch drive with your Electron, whereas the Plus 3 will only take such a drive as a second drive.

The Plus 3 looks smarter than Cumana's interface and fits in neatly with the rest of the system without requiring a Plus 1 or taking up one of its slots. There is only one real drawback at the moment with the Plus 3. There is little in the way of software available on disc. Even blank discs are pricey at around £4 each and are comparatively difficult to obtain. Make sure your dealer can supply these before you buy. The Cumana interface will allow you to use Beeb software if you purchase a 5.25 inch drive.

OVERVIEW

All in all I found the Plus 3 a delight to work with, and it certainly impressed friends with its speed of saving and loading. The DFS takes all the hard work out of locating and loading files and in its appearance it all fits together extremely well. Congratulations to Acorn for a first class product.