

ELBUG

SUPPLEMENT TO BEEBUG

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Slogger's ElkMan ROM Manager

With the increasing number of ROMs now on the market for the Electron, Slogger Ltd. has produced a ROM management system so that you can keep an eye on things. Alan Webster reports on Slogger's latest development.

Product : ElkMan ROM
Supplier : Slogger Ltd., 215 Beacon Rd.,
Chatham, Kent.
Ø634-811634
Price : £17.50

the Electron), has produced a similar ROM for Electron owners. Obviously, you will need a ROM expansion board to run this

With the availability of Electron ROM software on the increase, there comes a time when you buy a new ROM and find out that one or more of the commands clash with those of other ROMs. This became so much of a problem with the BBC micro that Watford Electronics produced a ROM manager. This enables one or more ROMs to be disabled or enabled (including itself) so that an O.S. command will be directed to the relevant ROM.

Now Slogger, the company that makes the ROM expansion board (the 'Rombox' for

```
>*HELP ELKMAN
VIEW A2.1
ElkMan 1.2 (C) Slogger 1985

PROMS      <<id>>
RSIZE      <id>
RAMCLR      <id>
OFFFROM     <id>
ONFROM      <id>
KILLFROM    <id>
RSAVE       <id> <filename>
RLOAD       <filename> <id>
CRCSUM      <st addr> <end addr> <<id>>
ROMMEM      <id> <dest addr>
MEMFROM     <st addr> <id>
PEEK        <st addr> <end addr> <<id>>
POKE        <st addr> <<id>> <bytes>
ILIST       <st addr> <end addr> <<id>>
PKEY        <<n>>
KLIST

OS 1.20
>
```

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The August/September ELBUG magazine cassette is packed with goodies for the Electron user. All the programs from this month's BEEBUG are there - Pop-up Calculator, Adding new OS commands, The Workshop examples, the program from Looking at Data Structures, and the Builder Bob game - and the program from this ELBUG supplement - the Boxes game.

In the June 1985 issue of ELBUG (Vol.2 No.7) we mentioned that the magazine cassette for that month contained a bonus game called Swan Trap. Due to last minute difficulties this was not included on the cassette. However, this month we have included this interesting two player game with all the other programs from this issue.

```

>
>*KILLROM EXMON
>
>*PROMS
15:Empty (K) 16k
14:BASIC (1) 16k
13:Empty (K) 16k
12:Empty (K) 16k
11:Empty (K) 16k
10:VIEW (1) 16k
9:EXMON (K) 8k
8:PRINTMASTER (1) 8k
7:DUMPOUT (1) 8k
6:TOOLKIT (1) 8k
5:Empty (K) 16k
4:Empty (K) 16k
3:Empty (K) 16k
2:ElkMan (1) 8k
1:Empty (K) 16k
>
>

```

software, and a review of the Slogger Rombox can be found in ELBUG Vol.1 No.10.

The ROM contains some useful commands such as *PROMS which will list each ROM giving its title, socket number, status, size in K and whether it is in sideways RAM or ROM. A *RSIZE command will give details of size on a specific ROM, including the start and end addresses and the length. Unfortunately ElkMan doesn't seem to know the difference between an empty socket and an unrecognizable ROM.

Two more commands provide the facility to enable or disable any ROM, and there is a command to clear any sideways RAM. ElkMan also provides the facility to save a particular ROM or EPROM to cassette or disc, and to load a file into sideways RAM. The manual claims that these are useful if you wish to have backup copies of your ROMs. If you happen to destroy one of your ROMs, then getting it re-blown could be a problem as nobody has yet produced an EPROM programmer for the Electron, though some companies do offer an EPROM blowing service.

The ROM also has two commands to read and write to ROM, RAM or memory. The *PEEK command will read data from anywhere in the Electron's memory or from a ROM, whereas *POKE will put data into memory or sideways RAM. There is also a simple disassembler which will disassemble the code from any point in memory or ROM.

To round off the command set in ElkMan are two 'add-on' commands that have no relevance to ROMs or ROM management, but just happened to fit in the ROM. These are concerned with function keys and to be honest, Slogger could have used the space better. One command will print the contents of a function key and the other lists the status of the function keys, telling you whether they are programmed or empty and how much space there is left in the function key buffer. It would have been nice to roll the two commands into one and have the definitions printed with the free space.

The space wasted on the function keys could have been put to better use by providing a command by which any O.S. command could be re-directed to any number of ROMs in sequence, i.e. changing the priorities of each ROM without having to disable them or physically move them around the ROM board.

The ElkMan ROM arrives in a polystyrene package with a clearly written 21 page A5 manual, that also covers the insertion and extraction of ROMs.

Overall this is a useful item of software for anybody interested in expanding their Electron's capabilities. The commands, apart from the ones related to the function keys, are very useful and could save much time and inconvenience when a command conflict is met.

Operation Caretaker

Geoff Bains tries out a package from Global Software that promises to banish forever the dreaded 'Data?' and 'Block?' messages.

Product : Operation Caretaker
 Supplier : Global Software
 PO Box 67,
 London, SW11 1BS.
 01-228 1360
 Price : £10.95

Operation Caretaker is Global Software's first release for the Electron. However, it is not really a software package at all. Operation Caretaker is a combination of software and hardware to help you get the best from your cassette recorder.

← Cassette recorders suffer from two problems that prevent them from operating perfectly with computers and cause the loading errors that you have, no doubt, experienced when loading your favourite game.

The first problem is one of dirty heads. When the magnetic tape in a cassette is passed over the record/playback head of a cassette recorder it leaves behind tiny particles of magnetic material. This results not only in the tape eventually wearing out as it leaves more and more of its substance behind, but also the heads of your cassette recorder getting pretty mucky.

All this magnetic gunge on the heads plays havoc with the proper operation of the recorder - the faithful recording and playing back of signals. The dirt particularly affects high frequency recordings and the whine that is used to record an Electron program is pretty high frequency so it suffers even more than an audio recording.

If the situation is allowed to get really bad then the heads themselves can become magnetized, making reproduction even worse.

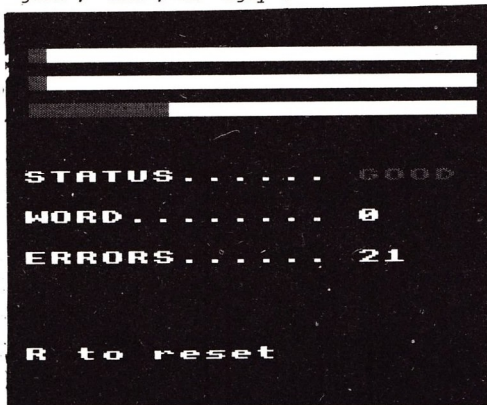
Half of the Operation Caretaker package takes care of this problem. In the pack are two cassettes. One of them is a head cleaning tape incorporating a rather clever head demagnetizer. The 'tape' in this cassette is a rough cloth that strips the dirt off your recorder's heads. As the tape plays it also revolves a wheel in the cassette. This contains a magnet and as it revolves the head is demagnetized.

The other cassette in the Operation Caretaker package is used to solve the other major problem that bugs home computer cassette users. This is the problem of azimuth adjustment.

Azimuth is just the fancy term for aligning the heads with the tape. If the tape passes over the heads at an angle then the signal will not be reproduced at its optimum level. There is a screw azimuth adjustment possible on most cassette recorders (look for a little hole in the case by the cassette door of your

recorder) but making the adjustment is not easy...until Operation Caretaker came along.

Now all you have to do is load the second tape in the Operation Caretaker pack and watch the screen while twiddling the adjusting screw with the screwdriver provided. The tape contains a test recording that is recognizable by the computer. The screen shows the number of attempts that have been made to read the tape (it tries continually), the number of errors encountered, and the status - 'good', 'bad', or 'ugly'!



Operation Caretaker provides nothing that can't be achieved without it. You can buy head cleaners and demagnetizers in HiFi shops, though these are remarkably expensive. The azimuth adjusting can be done by ear - just play an audio tape on the recorder and turn the adjusting screw until the loudest and clearest sound emerges - but this does take a certain amount of knack. However, Operation Caretaker brings all these things together in a convenient and reasonably priced package especially for your computer.

While the tape is being tested in this way, you simply turn the adjusting screw back and forth watching the results. Once you have found the optimum setting your recorder is set up forever, or at least for a couple of months when it is time to adjust it again. Global recommends that the azimuth is adjusted every ten hours of playing time.

Your Guide To BEEBUG

Although only one of the programs in this month's BEEBUG requires any alteration to run on the Electron, 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.

40/80 DUAL FORMAT UTILITY

Even if you have an Electron Plus 3 unit, you will not be needing this utility for Beeb owners. This uses only 80 track discs so there is no problem to be solved. However, owners of the Cumana disc interface may still find it useful.

AMX UTILITIES

The rodent rears its head again. It is about time that AMS released an Electron version of the AMX mouse. Then all these goodies could be yours as well.

POP-UP CALCULATOR

Cleverly designed, this calculator program will appear whenever needed and vanish into the depths of your Electron afterwards. There is one small change to be made to the program to account for the fact that the Electron has no Tab key. Alter line 2050 to read:

```
2050 CMP#ASC("E"):BEQ ne
```

This sets the 'E' key as the key to exit from the calculator to whatever task your Electron was performing before.

CREATIVE SOUND

The Electron is, sadly, a little lacking in the noises department when compared to its older brother. This book from Acornsoft will hold little but general interest for ELBUG members.

ACORNSTOCK'S BASIC EDITOR

This other gem from the Acornsoft stable is also of little interest to ELBUG members as the Basic Editor ROM doesn't work on the Elk, even if you have a ROM board to plug it into. No doubt Acornsoft will be bringing out an Electron version on cartridge for the Plus 1 before long.

EPROM PROGRAMMER PROJECT

This electronics construction project will not work on the naked Elk as it requires a Printer Port and a User Port. However, if you have an interface that provides both of these (the Mushroom interface from Broadway Electronics, for example - see ELBUG Vol.2 No.4) then interfacing the EPROM programmer is possible but may require a few changes to the software to be published next month.

ELBUG members who are electronic wizards may be able to design a small interfacing circuit to take the place of Printer and User Ports for this purpose.

FIRST COURSE - drawing simple bar charts.

This month's article in our new series for beginners is not applicable to ELBUG

members because it involves the use of mode 7 graphics. Bar charts can, of course, be drawn in the graphics modes available on the Electron, but not using the methods and program outlined here.

Future First Course articles will be more applicable to Electron users.

ADDING NEW OS COMMANDS

The ability to add on your own commands to the Electron's Operating System is one of the machine's most powerful features. This article gives you the low-down on how to achieve this. No changes are needed to the program to work perfectly on the Elk. However, the first time that cassette users call up their added command, use *RUN <name> instead of just *<name>.

GAMES REVIEWS

Three of the four games reviewed this month are available for the Electron. Battlefields will operate on either machine and Drain Mania is available in Electron format. Repton has been specially re-written for the Electron as a version that is, in some ways, better than the Beeb original.

BULLETIN BOARDS - the latest

The expanding field of communications is given another going over in this article on bulletin boards operating in the Prestel format. Although this is not directly relevant to ELBUG members, as no modem capable of connecting to Prestel yet exists for this computer, readers may well find the article of general interest.

WORKSHOP - Using look-up tables

Last month's theme of speeding up Basic programs is continued with a look at a commonly used method of making the most of your computer. Like last month's piece, this one is useful to ELBUG members and the example programs require no changes.

LOOKING AT DATA STRUCTURES (Part 1)

Arranging the data used in a program in the most efficient way is a very important part of writing a program. This

new series looks at some of the methods available. Everything said is applicable to the Electron and the example program will work without any changes.

ADVENTURE GAMES

Neither of the Robico adventures reviewed this month are available in versions for the Electron

THE BEEB'S DISC CATALOGUE REVEALED

The catalogues of discs recorded on the Plus 3 are in a totally different format to those of the Beeb (the hierarchical filing system is to blame - see the Plus 3 review in ELBUG Vol.2 No.6) so this article and program is not relevant to ELBUG members.

However, readers with a Cumana disc interface will find that, when that interface is in BBC micro mode, that catalogues are stored in just the format described in the article.

PLOTMATE

This cheap flatbed plotter is not available for the Electron as it requires both a User Port and the low memory consumption of a mode 7 display.

6502 DEVELOPMENT PACK

This software package requires a 6502 second processor and so cannot be run on the Electron.

BUILDER BOB

This intriguing game of strategy and reflexes is as fast and furious on the Electron as it is on the Beeb. No changes are required to the listing published. You can go right ahead and type it in and have some fun.

HINTS

The following hints in this month's BEEBUG are relevant to the Electron:

FINDING FREE MEMORY
DECIMALS TO FRACTIONS
TEXT WINDOW DEFINING
BASIC LINE ADDRESSES
O.S. EXTINCTION

POINTS ARISING POINTS ARISING POINTS ARISING POINTS ARISING POINTS ARISING POINTS ARISING

In the June issue of ELBUG (Vol.2 No.7) the changes to make to the Trackman game were given incorrectly in 'Your Guide To BEEBUG'. Line 180 should be changed to:

180 PROC:MODE 4
and not MODE 5 as printed.

Boxes

So you think you are smarter than your computer? Pit your wits against your Electron in this game of strategy and cunning from Kevin Allen.

The game of boxes is one that has been played for many years on scraps of paper with a device (not seen much these days) called a 'pencil'. This game is an ideal candidate for conversion to a computerised version for the Electron. Not only will this save you running out of scraps of paper but it is also played against the computer and so doesn't require a long suffering companion.

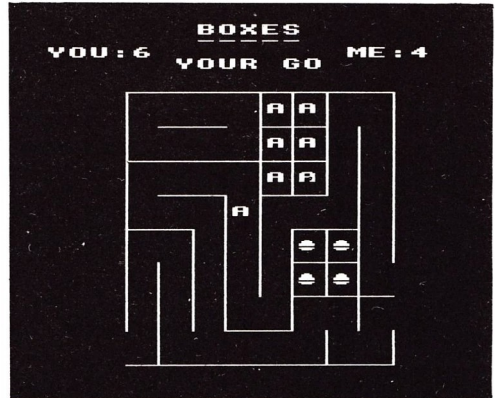
The rules of the game are simple. You are presented with a grid of dots which you and the Electron take turns in joining up with single lines. Whoever places the last line to form a box wins that box and their initial is placed inside. When you have won a box you must place another line on the board. When all the possible lines have been placed the player with the most boxes to their name is the winner.

In this way you must try to keep placing lines on the board without leaving any near-finished boxes for the other player (the Elk) to win.

This computerised version of Boxes is very fast and provides a good challenge to even the hardest of Boxes players. Be warned. The Electron is a fast player and it doesn't miss any chances!

The controls for playing the game are simple enough. The cursor (your initial) is moved around the board with the Z and X keys for left and right and the : and / keys for up and down. Pressing the space bar will draw a line on the board if the cursor is in a valid position and there is no line there already.

The program is quite long so take care typing it all in. Save the program before you run it. There is a distinct chance you will press Break in frustration half way through your third game, loosing all your typing efforts.



```

10 REM PROGRAM BOXES
20 REM VERSION E0.1
30 REM AUTHOR K. ALLEN
40 REM ELBUG AUG/SEPT 1985
50 REM PROGRAM SUBJECT TO COPYRIGHT
60 :
70 ON ERROR GOTO 2830
80 :
100 DIM BOX%(9,9),HBOX%(9,9),E%(9,9)
110 REPEAT
120 MODE 6
130 PROCinfo
140 PROCsetup
150 MODE 5
160 VDU23,1,0;0;0;0;
170 PROCscreen
180 REPEAT
190 PROCyou
200 GCOL 0,2:PROCme
210 UNTIL FIN%
220 PROCend
230 UNTIL FALSE
240 END
250 :
1000 DEF PROCyou
1010 VDU4:PRINT TAB(6,4)"YOUR GO":VDU5
1020 REPEAT
1030 IF INKEY(-98)ANDX%>208 X%=X%-50
1040 IF INKEY(-67)ANDX%<1008 X%=X%+50
1050 IF INKEY(-73)ANDY%<816 Y%=Y%+48

```

```

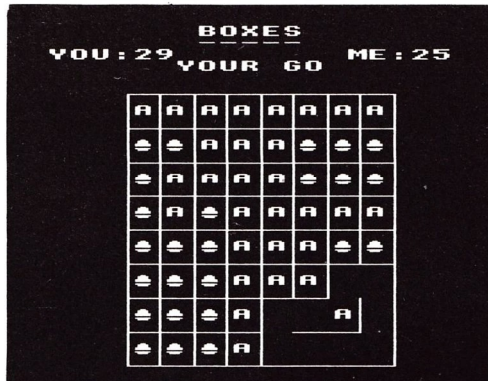
1060 IF INKEY(-105)ANDY%>48 Y%=Y%-48
1070 IF X%=X%:IF Y%=Y%:GOTO1120
1080 GCOL 2,2:MOVE X%,Y%:PRINTIS
1090 GCOL 1,1:MOVE X%,Y%:PRINTIS
1100 X%=X%:Y%=Y%:TIME=0
1110 REPEAT UNTIL TIME>15
1120 UNTIL INKEY(-99):GCOL 0,2
1130 A%=(X%-158)MOD100:B%=(Y%MOD96)
1140 IF A%=(B%*25/24) THEN 1020
1150 IF POINT(X%+57,Y%-16)=2 OR POINT(
X%+32,Y%+9)=2 THEN 1020
1160 IF B% PROChoriz:ELSE PROCvert
1170 IF AG%=0 ENDPROC
1180 VDU4:PRINT TAB(4,3);YS%:VDU5
1190 IF YS%+MS%=64 FIN%=TRUE:ENDPROC
1200 AG%=FALSE:GOTO 1020
1210 ENDPROC
1220 :
1230 DEF PROCme
1240 HYP%=0:VDU4:ME%=0
1250 PRINT TAB(6,4)" MY GO ":VDU 5
1260 SC%=0:FOR J%=1TO8:FOR K%=1TO8
1270 IF HBOX%(J%,K%) DIV 100=3 PROCthree
1280 NEXT,
1290 IF SC% THEN 1260
1300 IF HYP%=0 THEN 1350
1310 IF ME%<T% T%=ME%:HJ%=JT%:HK%=KT%
1320 FOR A%=1TO8:FOR B%=1TO8
1330 HBOX%(A%,B%)=BOX%(A%,B%):NEXT,
1340 GOTO 1450
1350 GO=0:R%=RND(8):J%=R%:MS%=MS%+ME%
1360 REPEAT:IF J%=8 J%=1:ELSE J%=J%+1
1370 Q%=RND(8):K%=Q%
1380 REPEAT IF K%=8 K%=1:ELSE K%=K%+1
1390 IF HBOX%(J%,K%) DIV 100<2 PROCone
1400 IF GO:UNTIL GO:UNTIL GO:GOTO 1500
1410 UNTIL K%=Q%:UNTIL J%=R%
1420 HYP%=TRUE:T%=65:MP%=1
1430 FOR JT%=1TO8:FOR KT%=1TO8:EB%=-1
1440 IF (HBOX%(JT%,KT%)DIV100=2)AND(E%
(JT%,KT%)=0) PROCtwo:ME%=0:GOTO 1260
1450 IF T%=MP%:JT%=8:KT%=8
1460 NEXT, :MP%=T%
1470 FOR A%=1TO8:FOR B%=1TO8
1480 E%(A%,B%)=0:NEXT,
1490 JT%=HJ%:KT%=HK%:HYP%=0:PROCtwo
1500 IF MS%+YS%=64 FIN%=TRUE
1510 ENDPROC
1520 :
1530 DEF PROChoriz
1540 J%=(X%-158)DIV100:K%=(Y%+48)DIV96
1550 PROCbottom
1560 IF K%<9:IF HBOX%(J%,K%)DIV100=4:M
OVE 158+J%*100,K%*96:PRINT IS:YS%=YS%+1
:AG%=TRUE
1570 IF K%>1:IF HBOX%(J%,K%-1)DIV100=4
:MOVE 158+J%*100,-96+K%*96:PRINT IS:YS%
=YS%+1:AG%=TRUE
1580 ENDPROC
1590 :
1600 DEF PROCvert
1610 J%=(X%-108)DIV100:K%=(Y%)DIV96
1620 PROCleft
1630 IF J%<9:IF HBOX%(J%,K%)DIV100=4:M
OVE 158+J%*100,K%*96:PRINT IS:YS%=YS%+1
:AG%=TRUE
1640 IF J%>1:IF HBOX%(J%-1,K%)DIV100=4
:MOVE 58+J%*100,K%*96:PRINT IS:YS%=YS%+
1:AG%=TRUE
1650 ENDPROC
1660 :
1670 DEF PROCone:GO=TRUE
1680 N%=HBOX%(J%,K%+1):S%=HBOX%(J%,K%)
1690 O%=HBOX%(J%+1,K%):M%=S%MOD100
1700 A%=(J%=1 AND (M% AND1)=0)
1710 B%=(K%=1 AND (M% AND2)=0)
1720 C%=(N% DIV100>1 OR (M% AND8)=8)
1730 D%=(O% DIV100>1 OR (M% AND4)=4)
1740 IF A% PROCleft:ENDPROC
1750 IF B% PROCbottom:ENDPROC
1760 IF C% AND D% GO=0:ENDPROC
1770 ON RND(2) GOTO 1780,1790
1780 IF C%=0 PROCTop:ENDPROC
1790 IF D%=0 PROCright:ENDPROC ELSE GO
TO 1780
1800 ENDPROC
1810 :
1820 DEF PROCTwo
1830 K%=KT%:J%=JT%:L%=HBOX%(J%,K%)-200
1840 IF (L% AND1)=0 PROCleft:ENDPROC
1850 IF (L% AND2)=0 PROCbottom:ENDPROC
1860 IF (L% AND4)=0 PROCright:ENDPROC
1870 IF (L% AND8)=0 PROCTop
1880 ENDPROC
1890 :
1900 DEF PROCthree
1910 SC%=1:ME%=ME%+1:IF HYP%:GOTO1950
1920 VDU4:PRINT TAB(17,3);MS%+ME%:VDU5
1930 MOVE 158+J%*100,K%*96:PRINT ES
1940 GOTO 1980
1950 BX%=BOX%(J%,K%)DIV100
1960 IF EB%:IF BX%=2:E%(J%,K%)=1
1970 IF BX%=1 E%(J%,K%)=1:EB%=0
1980 L%=HBOX%(J%,K%)-300:V%=K%:U%=J%
1990 ON (L% EOR 15) GOTO 2000,2010,60,
2020,60,60,60,2030
2000 PROCleft:U%=J%-1:P%=104:GOTO2040
2010 PROCbottom:V%=K%-1:P%=108:GOTO204
0
2020 PROCright:U%=J%+1:P%=101:GOTO2040
2030 PROCTop:V%=K%+1:P%=102
2040 IF HBOX%(U%,V%) DIV 100=4 HBOX%(U
%,V%)=HBOX%(U%,V%)-P%:IF HYP%=0 BOX%(U
%,V%)=BOX%(U%,V%)-P%
2050 ENDPROC
2060 :
2070 DEF PROCTop
2080 HBOX%(J%,K%)=HBOX%(J%,K%)+108
2090 HBOX%(J%,K%+1)=HBOX%(J%,K%+1)+102
2100 IF HYP% ENDPROC

```

```

2110 MOVE J%*100+240,K%*96+32:DRAW J%*
100+140,K%*96+32
2120 BOX%(J%,K%)=HBOX%(J%,K%):BOX%(J%,
K%+1)=HBOX%(J%,K%+1)
2130 SOUND 1,-15,140,2
2140 ENDPROC
2150 :
2160 DEF PROCbottom
2170 HBOX%(J%,K%)=HBOX%(J%,K%)+102:HBO
X%(J%,K%-1)=HBOX%(J%,K%-1)+108
2180 IF HYP% ENDPROC
2190 MOVE J%*100+240,K%*96-64:DRAW J%*
100+140,K%*96-64:BOX%(J%,K%)=HBOX%(J%,K
%):BOX%(J%,K%-1)=HBOX%(J%,K%-1)
2200 SOUND 1,-15,140,2:ENDPROC
2210 :
2220 DEF PROCright
2230 HBOX%(J%,K%)=HBOX%(J%,K%)+104:HBO
X%(J%+1,K%)=HBOX%(J%+1,K%)+101
2240 IF HYP% ENDPROC
2250 MOVE J%*100+240,K%*96+32:DRAW J%*
100+240,K%*96-64:BOX%(J%,K%)=HBOX%(J%,K
%):BOX%(J%+1,K%)=HBOX%(J%+1,K%)
2260 SOUND 1,-15,140,2:ENDPROC
2270 :
2280 DEF PROCleft
2290 HBOX%(J%,K%)=HBOX%(J%,K%)+101:HBO
X%(J%-1,K%)=HBOX%(J%-1,K%)+104
2300 IF HYP% ENDPROC
2310 MOVE J%*100+140,K%*96+32:DRAW J%*
100+140,K%*96-64:BOX%(J%,K%)=HBOX%(J%,K
%):BOX%(J%-1,K%)=HBOX%(J%-1,K%)
2320 SOUND 1,-15,140,2:ENDPROC
2330 :
2340 DEF PROCend
2350 VDU4:PRINT TAB(5,16)" GAME OVER "
2360 PRINT TAB(6-(MS%>YS%),18);
2370 IF MS%>YS%:PRINT;" WIN "
2380 IF MS%=YS%:PRINT;" DRAW "
2390 IF MS%<YS%:PRINT;" YOU WIN "
2400 PRINT TAB(4,20)" PRESS SPACE "
2410 REPEAT UNTIL INKEY(-99)
2420 ENDPROC
2430 :
2440 DEF PROCsetup
2450 FIN%=FALSE:AG%=FALSE:GO=FALSE
2460 VDU 23,225,24,60,60,126,126,0,126
,60:E$=CHR$(225)
2470 FOR E%=1TO8:FOR F%=1TO8
2480 BOX%(E%,F%)=0:HBOX%(E%,F%)=0
2490 E$(E%,F%)=0:NEXT,
2500 X%=608:Y%=480:X$=X%:Y%=Y%
2510 YS%=0:MS%=0:MH%=0:HYP%=0
2520 ENDPROC
2530 :
2540 DEF PROCscreen
2550 PRINT TAB(0,3)"YOU:0";TAB(7,1)"BO
XES";TAB(7,2)"-----";TAB(14,3)"ME:0"
2560 VDU 5,19,1,1;0;
2570 GCOL0,2

```



```

2580 FOR C%=240TO1040 STEP100
2590 FOR D%=32TO800 STEP96
2600 PLOT 69,C%,D%
2610 NEXT,
2620 GCOL 1,1:MOVE x%,y%:PRINT$
2630 ENDPROC
2640 :
2650 DEF PROCinfo
2660 CLS:VDU19,3,6;0;
2670 PRINT TAB(17,2)"BOXES"TAB(17,3)"=
===="
2680 PRINT TAB(3,5)"The object of the
game is to join all the dots,horizontall
y or vertically,to form boxes.The play
er who adds the last side of a box gets
a point.After all the dots have been jo
ined,the player with the most boxes w
ins."
2690 PRINT TAB(3,12)"Cross Controls:"T
AB(8,14)"Z : Left X : Right"TAB(8
,16)"* : Up / : Down"TAB(8,18)"
SPACE : Draw line"
2700 *FX15
2710 *FX210
2720 PRINT TAB(7,21)"Please enter your
initial: ";VDU 8
2730 G=GET:IF G<65 OR G>90 THEN 2720
2740 I$=CHR$G:PRINT I$:I=INKEY(50)
2750 PRINT TAB(7,21)SPC(30) TAB(7,21)"
Do you want sound? ";VDU 8
2760 REPEAT: G=GET:UNTIL G=89 OR G=78
2770 PRINT CHR$G:I=INKEY(50)
2780 IF G=78 THEN *FX210,1
2790 PRINT TAB(7,21)"Press <SPACE> to
start. "
2800 REPEAT UNTIL INKEY(-99)
2810 ENDPROC
2820 :
2830 ON ERROR OFF
2840 MODE 6
2850 IF ERR<>17 REPORT:PRINT " at line
";ERL
2860 END

```