

SEP '86

11



UK EINSTEIN USER GROUP
NEWSLETTER

Issue Number Eleven September 1986

EDITORIAL

Here we are again, probably late as usual but you are all used to that by now, so on with the show.

Talking of shows we have a report on the PCW SHOW from Chris Giles who was there every day and has only just recovered, and details on our own show on November 8th.

In last months Newsletter Neil Imry wrote a review on the production version of the Sillicon Disk and raised a few technical questions, these questions and more have kindly been answered by Mr J A (Tony) Brewer who designed and built the unit. Tony has also offered to supply the Sillicon Disk for a limited period (October - end December) to GROUP MEMBERS ONLY at £70.95 showing a saving of £20.00, see enclosed order form.

Some of the titles which are currently being converted to run on either the Einstein or the 256 are:-

INFILTRATOR
FLIGHT DECK
COULDRON II
FAIRLIGHT
AIRWOLF
BEACHHEAD 1+2
IMPOSSIBLE MISSION
NIGHTLAW

also being looked at are some Amstrad PC8256 programs including CARDBOX, JOB COSTING, SMALL ACCOUNTS and CADCAM.

Current new release include HOUSE OF USHER, ATTACK OF THE KILLER TOMATOES, QUANTUM (TURMOIL on the ATARI), and on one disk F1 SIMULATOR/ SOUL OF A ROBOT. All of these should be available from SYNTAXSOFT in the near future if not already.

Most if not all of HIGHSOFT'S CP/M software which is currently available for the AMSTRAD is now also available in EINSTEIN format at the same price. These include such things as:

TURBO PASCAL £63.25
Micro PROLOG £79.00
Nevada COBOL £39.95

If the AMSTRAD price is not available then you could buy the AMSTRAD VERSION and a copy of AMTAT * from ACC which will allow you to run it on the EINSTEIN.

* AMTAT will be reviewed in the next issue, talking of ACC their 10 MB HARD DISC is now available at the reduced price of £595.64 (see order form).

We have been asked if we will be supporting the EINSTEIN 256, the answer is of course YES. All the software we have published should run as is and in the future we will have some which is purely for that machine .

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AUTO MENU  
Program by D.A.Harvey, Gt. Yarmouth

This is an Auto Menu Utility. If used as an Autboot file when booting, the files on disk are listed with a letter to the left of the filename. Pressing the appropriate letter only loads and executes that file. (N.B. does not work with dos 2.01)

When typed in and RUN it will ask for P%, this should be input as 56027. If all is well, it will assemble with no errors. When a correct assembly has been acheived, save it with the command:-

\*SAVE "AUTO.COM" DADB EOFF

Go back to DOS and Execute it. If all is well the prompt asking you for a drive will appear, give it a drive and the Directory will appear with letters to the left of each entry. To Execute any of these simply press the appropriate letter.

|                         |                                       |
|-------------------------|---------------------------------------|
| 10 INPUT "INPUT P%";P%  | 490 LD C,&1A                          |
| 20 HIMEM=P%-1           | 500 CALL 5                            |
| 30 O%=P%                | 510 LD DE,FDESC                       |
| 40 PROCASS(0)           | 520 LD C,17                           |
| 50 P%=O%                | 530 CALL 5                            |
| 60 PROCASS(3)           | 540 CALL getnam                       |
| 70 REM                  | 550 .LOOP1 LD DE,FDESC                |
| 80 REM                  | 560 LD C,18                           |
| 90 REM                  | 570 CALL 5                            |
| 100 REM                 | 580 CP &FF                            |
| 110 END                 | 590 JR Z,ALLIN                        |
| 120 DEF PROCASS(opt)    | 600 CALL getnam                       |
| 130 PRINTP%             | 610 JR LOOP1                          |
| 140 [OPT opt            | 620 ;COLLECT THE FILE NAMES INTO BUFF |
| 150 .PRGMOV LD BC,&02FF | 630 .ALLIN LD A,&24                   |
| 160 LD DE,START         | 640 LD DE,(POINTER)                   |
| 170 LD HL,&011C         | 650 LD (DE),A                         |
| 180 LDIR                | 660 LD DE,COLBUF                      |
| 190 LD HL,&DAA0         | 670 LD C,9                            |
| 200 LD (0006),HL        | 680 CALL 5                            |
| 210 LD (HL),&C3         | 690 ;MARK PROG BUFFER END WITH \$ AND |
| 220 INC HL              | OUTPUT WHOLE PROG BUFFER              |
| 230 LD (HL),00          | 700 .LOOP2 LD C,1                     |
| 240 INC HL              | 710 CALL 5                            |
| 250 LD (HL),&EC         | 720 LD B,A                            |
| 260 JP START            | 730 ;COLLECT KEY                      |
| 270 .START LD A,&41     | 740 LD HL,COLBUF                      |
| 280 LD (KEYCHA),A       | 750 LD DE,15                          |
| 290 LD HL,&0100         | 760 .LOOP3 LD A,(HL)                  |
| 300 LD (BUFSTR),HL      | 770 CP &24                            |
| 310 LD HL,COLBUF        | 780 JR Z,retdos                       |
| 320 LD (POINTER),HL     | 790 CP B                              |
| 330 LD E,&0C            | 800 JR Z,BUFOUT                       |
| 340 LD C,2              | 810 ADD HL,DE                         |
| 350 CALL 5              | 820 JR LOOP3                          |
| 360 ;CLEAR SCREEN AND   | 821 .retdos RST 0;RETURN TO DOS ON    |
| CURSOR HOME ***         | OTHER KEY                             |
| 361 LD DE,BUFFER        | 830 ;FIND SELECTION IN BUFFER         |
| 362 LD C,9              | 840 .BUFOUT INC HL                    |
| 363 CALL 0005           | 850 INC HL                            |
| 364 CALL COLBUF         | 860 LD DE,FDESC+1                     |
| 365 LD DE,BUFF2         | 870 LD BC,11                          |
| 366 LD C,9              | 880 LDIR                              |

```

367 CALL 5
370 LD HL, FDESC+1
400 LD (HL), &3F
410 LD DE, FDESC+2
420 LD BC, 11
430 LDIR
440 LD (HL), 0
450 LD BC, &20
460 LDIR
470 ;PAD FDESC WITH '?'s
480 LD DE, BUFFER
1000 LD C, &10
1010 CALL 5
1020 LD HL, &EC00
1030 LD (0006), HL
1040 LD DE, &0080
1050 LD C, &1A
1060 CALL 5
1070 JP &0100
1100 .getnam PUSH AF
1110 LD A, (KEYCHA)
1120 LD DE, (POINTER)
1130 LD (DE), A
1140 INC DE
1150 INC A
1160 LD (KEYCHA), A
1170 LD A, &3A
1180 LD (DE), A
1190 INC DE
1200 POP AF
1210 LD HL, BUFFER+1
1220 LD BC, &0020
1230 .LOOP4 CP 0
1240 JR Z, FOUND
1250 ADD HL, BC
1260 DEC A
1270 JR LOOP4
1271 .FOUND PUSH HL
1272 PUSH BC
1273 LD BC, 8
1274 ADD HL, BC
1275 LD A, &7F
1276 AND (HL)
1277 LD (HL), A
1278 POP BC
1279 POP HL
1280 LD BC, 11
1290 LDIR
1300 LD A, (FLAG01)
1310 CP 0
1320 JP NZ, OVER1
1330 LD A, &0A
1340 LD (DE), A
1350 INC DE
1360 LD A, &0D
1370 LD (DE), A
1380 INC DE
1390 LD A, 1
1400 LD (FLAG01), A
1410 JP CONTIN
1420 .OVER1 LD A, &20
1430 LD (DE), A
890 ;PUT SELECTION INTO FDESC
900 LD DE, FDESC
910 LD C, &0F
920 CALL 5
930 .COLFIL CALL CALBUF
940 LD DE, FDESC
950 LD C, &14
960 CALL 5
970 CP 0
980 JP Z, COLFIL
990 LD DE, FDESC
1480 LD (FLAG01), A
1490 .CONTIN LD (POINTER), DE
1520 RET
1530 .CALBUF LD DE, (BUFSTR)
1540 LD C, &1A
1550 CALL 5
1560 LD DE, (BUFSTR)
1570 LD HL, 128
1580 ADD HL, DE
1590 LD (BUFSTR), HL
1600 RET
1610 .KEYCHA DEFM "A"
1620 .BUFSTR DEFB &00
1630 DEFB &01
1640 .FLAG01 DEFB 1
1650 .FDESC NOP
1660 DEFM "???????????"
1670 DEFW 0
1680 DEFW 0
1690 DEFW 0
1700 DEFW 0
1710 DEFW 0
1720 DEFW 0
1730 DEFW 0
1740 DEFW 0
1750 DEFW 0
1760 DEFW 0
1770 DEFW 0
1780 DEFW 0
1790 DEFW 0
1800 DEFW 0
1810 DEFW 0
1820 DEFW 0
1830 DEFW 0
1840 DEFW 0
1850 DEFW 0
1860 DEFW 0
1880 .BUFFER DEFM "AUTO MENU by
      D.A.Harvey July 86":DEFB &0A
      :DEFB &0D:DEFB &24
1881 .BUFF2 DEFM "Select file with
      preceedng chaacter":DEFB &0A
      :DEFB &0D
1882 DEFM "or any other key for DOS"
      :DEFB &0A: DEFB &0D:DEFB &24
1883 DEFM "
      ";76 SPACES
1890 .POINTER DEFW COLBUF
1900 .COLBUF LD DE, MESSAGE
1910 LD C, 9

```

|                     |                                     |
|---------------------|-------------------------------------|
| 1440 INC DE         | 1920 CALL 5                         |
| 1450 LD (DE),A      | 1930 LD C,1                         |
| 1460 INC DE         | 1940 CALL 5                         |
| 1470 LD A,0         | 1950 CP &30                         |
| 1960 JP Z,valid     | 2040 LD (FDESC),A                   |
| 1970 CP &31         | 2071 LD DE,CRLF                     |
| 1980 JP Z,valid     | 2072 LD C,9                         |
| 1990 CP &32         | 2073 CALL 5                         |
| 2000 JP Z,valid     | 2080 RET                            |
| 2010 CP &33         | 2090 .MESSAGE DEFM "DRIVE (0-3)?\$" |
| 2020 JP NZ,COLBUF   | 2100 .CRLF DEFB &0D:DEFB &24        |
| 2030 .valid AND &03 | 2110 ]                              |
| 2031 INC A          | 2120 ENDPROC                        |

~~~~~

A DAY IN THE LIFE OF A SHOWGOER.

What am I saying, this should be Four Days in the life of a showgoer. Little did I know what I was letting myself in for when I stupidly volunteered to go to the show for FOUR days to man the TATUNG stand on behalf of the UKEUG. Well I do now and I am telling you that next year if asked I am DEFINATELY GOING. In fact even if I am not asked I will do my best to get there. This is the first of these shows I have ever been to and it was tremendous. I have been to exhibitions such as BMEX (the show for builders merchants) as an exhibitor but my heart obviously has not been in it because I felt that it was a drag from beginning to end. This was something different. The first day was spent getting to know the people on the Tatung stand, and a great bunch they are. They made me feel welcome from beginning to end. (Even though I got under their feet from time to time.) I had a long chat with Roy Clark who knows everything there is to know about the workings of the machine. He introduced me to the 256. This has potential. As soon as we get our review machine from Tatung (promised soon) we will be doing our own review on it. I met a number of our members on the stand and it was terrific to be able to chat to you in person rather than on the phone. Putting faces to voices.

On to business, most of the software houses at the exhibition have agreed to either write stuff specifically for the Einstein or to convert their existing stuff to run on it so look out for a spate of new titles coming out soon. ELITE is available on the speculator and by the number of Spectrum owners who had a go on it and assed favourable comment it must be equal to that version. (Contact Syntaxsoft for further details)

Some of the people I met there. Stanley Wood, has written a typing tutor that is very good. It takes you through stages from very simple to very complicated following the Pitmans typing course and will not let you go on to the next stage until a certain level of proficiency has been acheived. I could do with that. He tells me that he may have one or two other things in the offing. A guy called Ron Harrison turned up with an Einstein with two drives and a printer in his hand, in fact it was in a breifcase in his hand??? Any takers??? Super for those of us who are limited for space or need to use it on the move for work. I am saving up for one! J.A.Brewer was another very interesting chap (see Eds page). He designed the Silicon disc, and whilst we were chatting about this and that I could see the cogs whirring around. Has he got some ideas for the future. For bolt on goodies addicts I get the feeling that the Einstein is beginning to get the attention it deserves.

Whilst I was at the PCW show on the TATUNG stand a couple of guys started playing with the hard disc by ACC. Allways interested in drumming up new members I approached them to ask if they were Einstein

owners. Luckily, before I opened my big mouth I watched them for a couple of moments.

Owners!! it would be my guess that they must have many machines to play with. They were putting stuff onto the machine so quickly that you could not see their fingers move. Well I plucked up enough courage to speak to them and they demonstrated a TEXT EDITOR to me. Boy was I impressed.

Fast? It was so fast it made ED80 look as though it was in hibernation for the winter between keystroke. Not only that it looked easy.

Mind you doesn't anything look easy when professionals are doing it.

Well guess what!!! they let me have a copy. We don't have a list of the commands for it, they said but see what you can do with it.

Well I am writing this epistle on it and I can assure you it is the best editor I have ever come across. it has all the usual functions although I have not found out how to place markers yet. What still amazes me is the speed. I am used to using TASWORD and find that when I am into the swing of it I can type (although two fingered) fast enough to have some keys missed. I expect on this one you could type at around 160 WPM before there was any hangups. I will have to find a professional typist to test it. Anyway, If you ever come across any software written by GENESIS don't ignore it. One of the duo is S.Demant*. A name to be reckoned with in the future I would think. Unfortunately I don't have the name of the other but they both have my admiration.

On the last day I actually managed to get around to seeing some of the other exhibitors. Kuma have offered to let our members purchase ZEN at list less 20% (see offer elsewhere). They were also interested in what our members thought of WDPRO. Well, what could I do but tell them. I was as honest as I could be and have agreed to foreward them extracts of your comments that we have had. It may well cause them to offer a word processor rather than a text formatter. Time will tell but our combined voice is listened to.

Caught the suppliers of the THINGI just as we were all packing up to go and we are negotiating for a deal on this as it really is an asset to getting stuff off paper and onto the screen.

Once again thanks to all you members who attended and made it worth my while being there.

P.S. It was a shame that the Einstein User was so late in getting out as I am sure a lot more of you would have attended had you known that Tatung were going to be there. It was ready for posting the previous Friday and there were lots of copies available at the show but due to a hitch in the post department they were a week late. Cest la vie.

* This Text Editor is now available from:

S.Demant
31 St Andrews Road
Headington
Oxford
OX3 9DL
Price £49.95

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#### ASSEMBLY LANGUAGE PROGRAMMING

Since starting the series it has become apparrant that many of you have been following it with interest. I think that we have now reached the stage where we can move on to a more comprehensive Editor Assembler. Looking at those available, I have chosen ZEN beause it is the easiest and most comprehensive for small routines such as those already covered.

Once loaded, everything can be done from within ZEN, the source code can be entered, assembled and errors corrected without leaving ZEN. It can then be run and debugged from within ZEN, although I prefer to use MOS for debugging programs.

The others I have looked at are The Einstein Assembly Language Course, Hisoft Devpac80 and the System 5 Xed with Xsm. All of these involve writing the source code on an editor, then running the source code through the assembler program to give a COM type file, followed by loading a debugger to actually run and test the program. If you are anything like me then most of the work is done correcting errors, which with the above systems means repeated loading of the Editor and then the Assembler before getting anywhere near running it.

Once you reach the stage where your listings are getting to 1000 lines or more then one of the above may be more useful, but as we are not expecting to get to this stage yet then I am sticking to ZEN. (See special offer)

Having told you how great ZEN is, it does have one or two failings but as we are getting skilled at writing our own routines we will be able to overcome these by re-writing parts of the program ourselves and these mods will form the basis of some of the future articles. Remember, keep a copy of the original so as not to lose it when we make a mess of the mods we are doing!

#### PERSONAL COLUMN

PARTNER WANTED WITH VIEW TO WRITING GAMES AND OTHER SOFTWARE FOR EINSTEIN AND OTHER MICROS.

01 527 7128 ANY EVENING.

FOR SALE HISOFT PASCAL DISC AND MANUAL £30.00 ?

PAUL STEWART  
18 WESTRIDGE ROAD  
PORTSWOOD  
SOUTHAMPTON

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PUBLIC DOMAIN SOFTWARE

We have been collecting various PDS over the last few months and currently have the equivalent of 13 3" disks full, that's 4888K of data, which ranges from assemblers to zappers including COMMS files and a complete side of COBOL.

These are all available FREE from us on our stand at the EXHIBITION or send a disk with a return address label and postage for the full catalog.

Pattern Generator Table 2048 bytes 1/3 Table	0000H	This is where the pattern of dots that makes up the picture is stored. Try poking this area with data to see what difference it makes. See later.
2048 bytes 1/3 Table		
2048 bytes 1/3 Table		
Sprite Pattern Generator Table 2048 bytes (256 blocks of 8 bytes each)	1800H	
Pattern Colour Table 2048 bytes 1/3 Table	2000H	This is the area where the colour is stored. Try poking this area to see what happens See later
2048 bytes 1/3 Table		
2048 bytes 1/3 Table		
Pattern Name Table 256 bytes 1/3 1/3 1/3	3800H	See note C
Sprite Attribute Table 128 bytes	3B00H	See note D
Function Key Table 128 bytes	3B80H	See Note E
Text Table 960 bytes	3C00H	See note F
64 bytes not used	3FC0H	See note G

Note A Try the following program:-

```

10 FOR PIX =0 TO 256
20 SHA=PIX MOD 8
30 VPOKE PIX,SHA
40 NEXT
    
```

See the shape build up at each 32col print position.

Note B Try this:-

```

10 FOR PIX=0 TO 255
20 COL=PIX
30 VPOKE PIX+&2000,COL
40 NEXT
    
```

See the colours change along the line.

Note C

EINSTEIN SILICON DISC

The Einstein silicon disc consists of 256K of RAM, arranged as 2048 sectors of 128 bytes each. The RAM is port-mapped and thus is not directly accessible as program memory. The input/output ports used by the silicon disc are given below.

Port	Use
XXF8H	Output low byte of sector number
XXF9H	Output high byte of sector number
NNFAH	Input or output data byte

[NN = 00H-7FH, XX = irrelevant.]

Before reading or writing data, it is necessary to specify which sector is being accessed by outputting the sector number, e.g

LD DE,0	Select sector 0
LD C,FBH	
OUT (C),E	Output sector no. low
INC C	
OUT (C),D	Output sector no. high

[The order of outputting the sector number is irrelevant.]

When reading or writing data, address lines A8-A14 are used to specify one of the 128 bytes in the sector. Given below are read sector and write sector routines that are essentially identical to those in the silicon disc ROM. Both routines assume the sector number has already been output.

READ:	LD HL,BUFF	HL -> sector buffer
	LD BC,7FFAH	
	INIR	Read first 127 bytes
	INI	Read last byte
	RET	

WRITE:	LD HL,BUFF	HL -> sector buffer
	LD BC,80FAH	
	OTIR	Write 128 bytes
	RET	

The following points should be noted. The value in register B is used both to define the byte within the sector and as a counter. The OUTI and OTIR instructions decrement the value in register B before placing it on A8-A15, whereas the INI and INIR do not. Thus, the first byte in the sector is accessed using port 7FFAH and the last byte using port 00FAH. Although this is how the silicon disc software operates, bytes may be read or written individually, and in any order, if desired.

The silicon disc ROM patches the following MOS MCAL routines, so that the silicon disc may be accessed as drive 3.

Number	Name	Description
A2H	ZRSECT	512-byte sector read
A3H	ZWSECT	512-byte sector write
A4H	ZRBLK	Block 512-byte sector read
A5H	ZWBLK	Block 512-byte sector write
B6H	ZSLDSC	Select disc drive (DOS)
BAH	ZRD128	128-byte sector read (DOS)
BBH	ZWR128	128-byte sector write (DOS)

A description of the changes to each MCAL routine is given below.

ZRSECT

If byte at FB50H (HSTDSC) = 3, then read 512-byte sector from silicon disc, else do normal read.

ZWSECT

If byte at FB50H (HSTDSC) = 3, then write 512-byte sector to silicon disc, else do normal write.

ZRBLK

If value in register A = 3, then read block of 512-byte sectors from silicon disc, else do normal block read.

ZWBLK

If value in register A = 3, then write block of 512-byte sectors to silicon disc, else do normal block write.

ZSLDSC

This is the DOS select disc routine kept in ROM for convenience. The changes to this routine are explained later.

ZRD128

This is the DOS sector read routine kept in ROM for convenience. If byte at FB7DH (DISC) = 3, then read 128-byte sector from silicon disc, else do normal read.

ZWR128

This is the DOS sector write routine kept in ROM for convenience. If byte at FB7DH (DISC) = 3, then write 128-byte sector to silicon disc, else do normal write.

Provision has been made in the silicon disc ROM for logical (DOS) disc drive to physical (MOS) disc drive mapping. The routine that accomplishes this is the patched DOS drive select routine ZSLDSC. This routine uses a special silicon disc variable at address FDFFH to determine which physical drive corresponds to which logical drive. This variable is interpreted in the following way

Bits 0,1 give physical drive number for logical drive 0
Bits 2,3 give physical drive number for logical drive 1
Bits 4,5 give physical drive number for logical drive 2
Bits 6,7 give physical drive number for logical drive 3

The default value is E4H or 11100100B, which gives a logical-to-physical mapping of 0-0, 1-1, 2-2 and 3-3.

The main reason for having disc drive mapping is so that the silicon disc can be configured as drive 0 when using the DOS, making programs which refer to drive 0 when loading, for example, do so much more quickly.

[Note that the silicon disc is always drive 3 when using the MOS. To make the silicon disc any other MOS drive requires a silicon disc ROM alteration.]

The following code makes the silicon disc act as logical drive 0, physical drive 0 act as logical drive 1, physical drive 1 act as logical drive 2 and physical drive 2 act as logical drive 3. Alternatively, the MOS 'M' command could be used.

```
LD A,93H
LD (FDFFH),A
```

Logical-to-physical drive mapping is purely a software feature operating within the DOS and requires no hardware changes to any floppy disc drive.

When the silicon disc is logical drive 0, it may be found that physical drive 0 is accessed when a program is loaded or exited. This is because the DOS warm-boot routine loads the DOS from MOS (physical) drive 0, then selects DOS (logical) drive 0. The solution is to patch the DOS warm-boot routine to load the DOS from the silicon disc, after copying the DOS onto the silicon disc.

Code that copies the DOS from the system tracks of physical drive 0 to the silicon disc is given overleaf. The MOS 'R' and 'W' commands may be used instead.

LD BC,0	Track 0, sector 0
LD DE,5A00H	End address for DOS
LD HL,4000H	Start address for DOS
PUSH BC	
PUSH DE	
PUSH HL	
XOR A	Physical drive 0
RST 8	
DB A4H	Read block
POP HL	
POP DE	
POP BC	
LD A,3	Physical drive 3
RST 8	
DB A5H	Write block

The code in the warm-boot routine for DOS version 1.31 that loads the DOS from disc is given below.

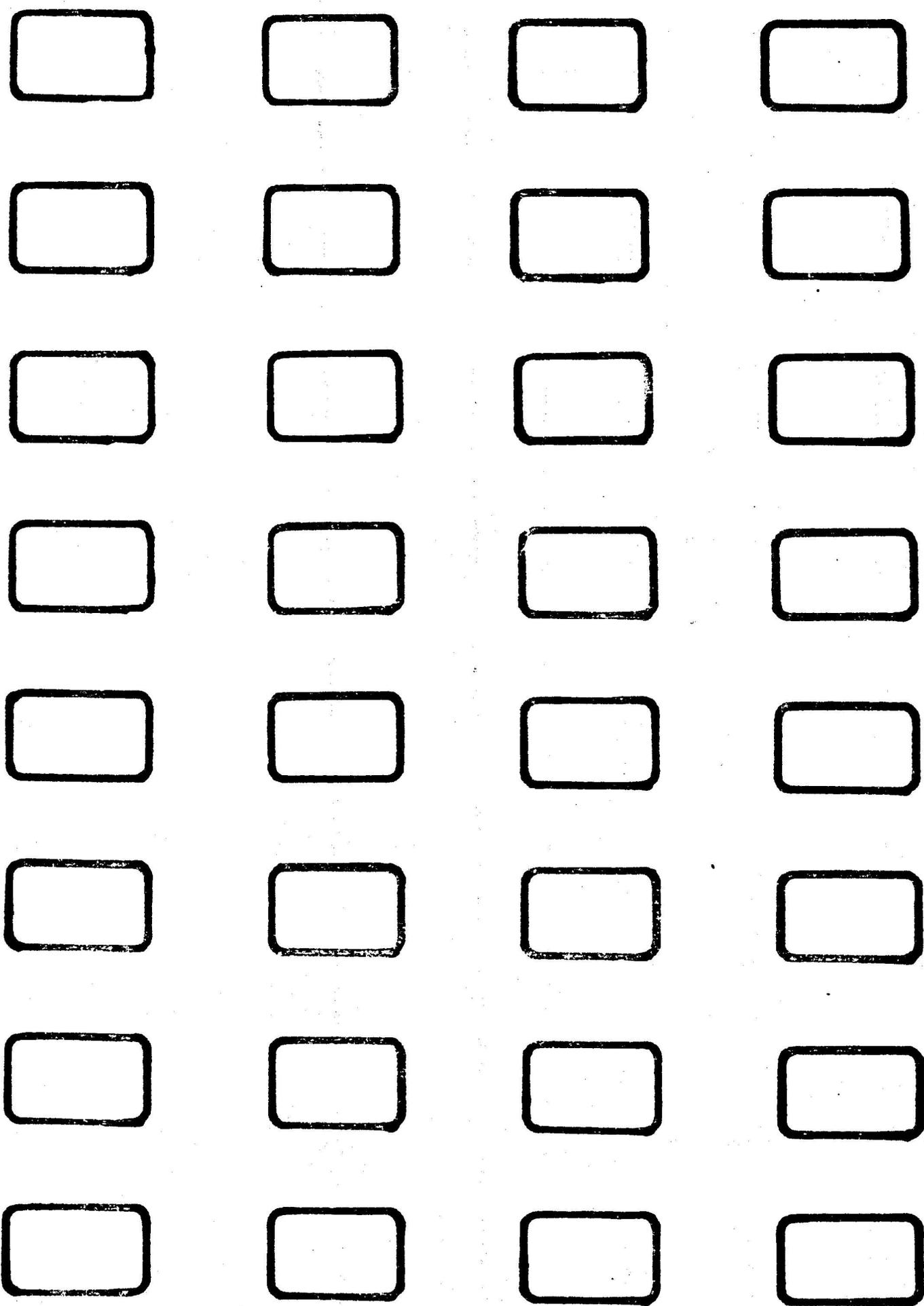
0000H:	JP FA03H	Jump to BIOS warm-boot jump
FA03H:	JP FAC9H	Jump to warm-boot routine
FAC9H:	LD SP,0100H	Reset stack
	LD HL,E100H	Start address for DOS to load
	LD DE,EC00H	End address for DOS to load
	XOR A	Physical drive 0
	LD B,A	Start at sector 0
	LD C,A	Start at track 0
	RST 8	
FAD6H:	DB A4H	Load DOS (MCAL routine ZRBLK)

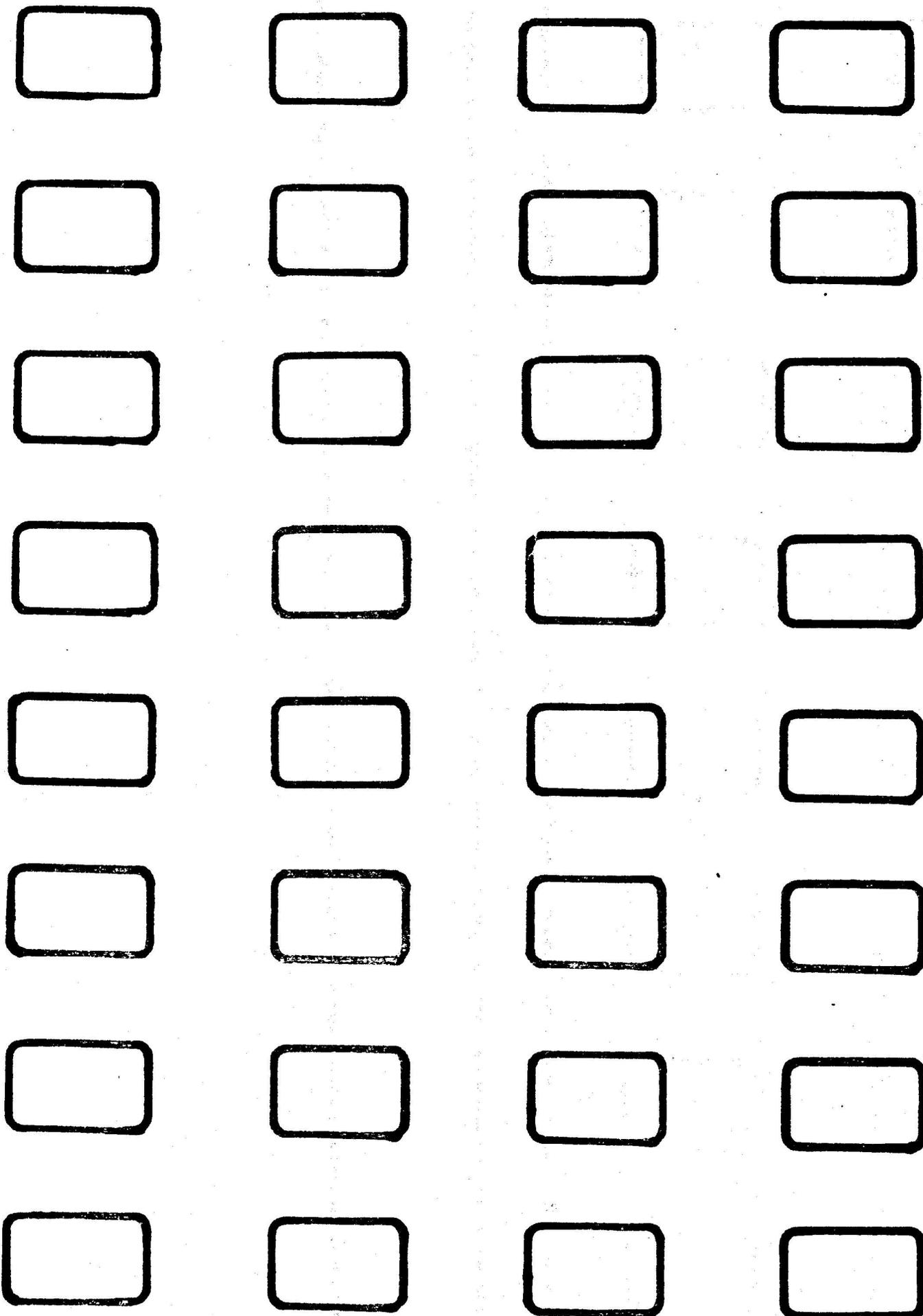
The silicon disc ROM contains a new MCAL routine, function number FFH, that simply calls ZRBLK after loading register A with the value 3. Therefore, to load the DOS from silicon disc, it is only necessary to change the MCAL number A4H to FFH.

The following code patches DOS version 1.31. The MOS 'M' command could be used if wished.

```
LD A,FFH
LD (FAD6H),A
```

Note that the address of the warm-boot routine and the start and end addresses for the DOS to load will vary from one version of the DOS to another. Overleaf is a program that patches the warm-boot routine which works for all DOS versions. It also copies the DOS from physical drive 0 to the silicon disc, which it then makes logical drive 0. The program is relocatable and should be executed from drive 0. If the program is run from the silicon disc, an error will occur when the program warm-boots, since logical drive 3 has been mapped to physical drive 2, unless physical drive 2 is present.





Firstly, copy DOS.

```
LD BC,0
LD DE,5A00H
LD HL,4000H
PUSH BC
PUSH DE
PUSH HL
XOR A
RST 8
DB A4H      Read DOS from physical drive 0
POP HL
POP DE
POP BC
LD A,3
RST 8
DB A5H      Write DOS to silicon disc
```

Now patch warm-boot routine.

```
LD HL,(0001H)  HL -> BIOS warm-boot jump
INC HL        Skip 'JP'
LD E,(HL)
INC HL
LD D,(HL)     DE -> warm-boot routine
EX DE,HL     HL -> warm-boot routine
LD BC,0
LD A,CFH
CPIR         Search for 'RST 8'
LD (HL),OFFH Change A4H to FFH
```

Finally, make silicon disc logical drive 0.

```
LD A,93H
LD (FDFFH),A
RST 0
```

A hex dump for this program is given below.

```
01 00 00 11 00 5A 21 00
40 C5 D5 E5 AF CF A4 E1
D1 C1 3E 03 CF A5 2A 01
00 23 5E 23 56 EB 01 00
00 3E CF ED B1 36 FF 3E
93 32 FF FD C7
```

The above program can easily be made into a .COM file by loading the hexadecimal values from address 0100H onwards using the MOS 'M' command and then saving on disc using the DOS 'SAVE' command.

As mentioned earlier, the silicon disc consists of 2048 sectors of 128 bytes each, the DOS sector size. The MOS sector size is 512 bytes, so there are four DOS sectors for every one MOS sector. Both DOS and MOS have the same number of bytes per track (5K), comprising 40 DOS sectors per track or 10 MOS sectors per track. The relationship between silicon disc number and DOS and MOS track and sector numbers as used in the silicon disc ROM is given below.

Sector number	DOS		MOS		
	Track	Sector	Track	Sector	
0	0	0	0	0	0 (1st 128 bytes)
1	0	1	0	0	0 (2nd 128 bytes)
2	0	2	0	0	0 (3rd 128 bytes)
3	0	3	0	0	0 (4th 128 bytes)
4	0	4	0	1	1 (1st 128 bytes)
.
.
39	0	39	0	9	9 (4th 128 bytes)
40	1	0	1	0	0 (1st 128 bytes)
.
.
2047	51	7	51	1	1 (4th 128 bytes)

Below is a routine that outputs the sector number of a particular DOS sector and track, given by the values in registers D and E respectively. Sector and track values are assumed to be valid.

```

LD L,E
LD H,0      HL = track
ADD HL,HL   HL = track * 2
ADD HL,HL   HL = track * 4
ADD HL,HL   HL = track * 8
LD B,H
LD C,L      BC = track * 8
ADD HL,HL   HL = track * 16
ADD HL,HL   HL = track * 32
ADD HL,BC   HL = track * 40
LD C,D
LD B,0      BC = sector
ADD HL,BC   HL = track * 40 + sector
LD A,L
OUT (FBH),A Output sector number low
LD A,H
OUT (F9H),A Output sector number high
RET

```

The above code can easily be modified for MOS sectors by left shifting the MOS sector number twice before entering the routine.

Any of the MCAL disc read or write routines mentioned earlier (ZRSECT,ZWSECT,ZRBLK,ZWBLK,ZRD128,ZWR128) may be used to transfer data to or from the silicon disc. It is not necessary to call the select disc drive routine (ZSLDSC) beforehand since the silicon disc is not physically 'selected'.

* * *

When the Einstein is first switched on with the silicon disc connected, the silicon disc is formatted by filling every sector with E5H. When the Einstein is thereafter reset, the silicon disc ROM reads the last sector (512 bytes) on track 1 and, provided every byte is E5H, it assumes that the silicon disc is already formatted. Therefore, this track is reserved and data should not be written to it.

* * *

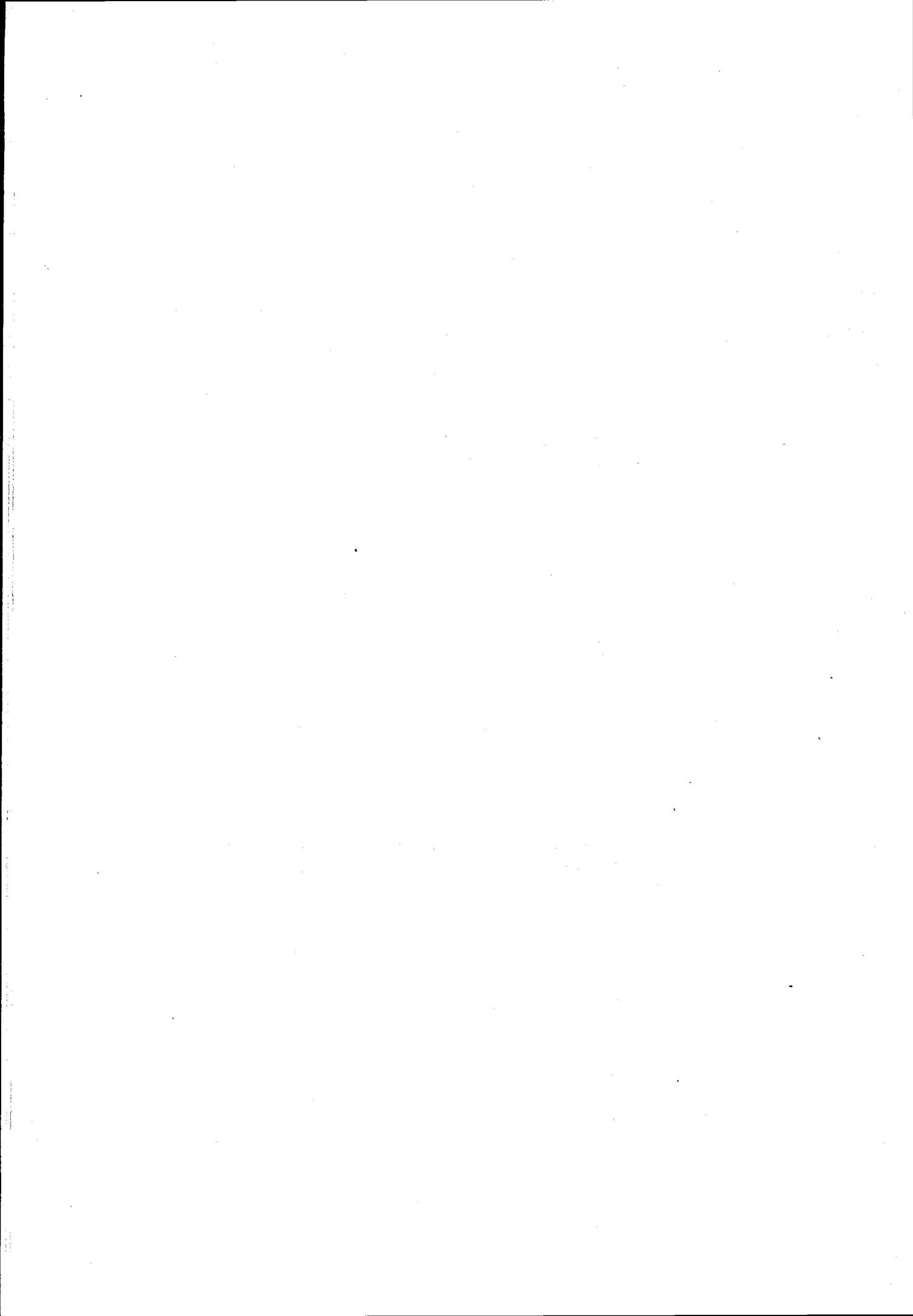
The current version of the silicon disc software (version 1.1) uses only 1.5K of the available 8K in the EPROM. The size of the DOS is exactly 6.5K, so it is possible in theory to include the DOS in the silicon disc EPROM. Alternatively, the silicon disc routines could be merged with other routines into one EPROM (upto a maximum of 16K) to fit into the one spare ROM socket inside the Einstein.

[It may be possible to increase the number of spare ROM sockets available in the Einstein.]

* * *

The silicon disc patches only those MCAL routines needed by the silicon disc but could patch ALL of the MCAL routines and create new ones. The spare bytes in the EPROM might be used to hold these new or modified routines.

* * *



Note D See what happens when you try this:-

```
10 FOR SPR =0 TO 127
20 ATT=SPR
30 VPOKE &3B00+SPR,ATT
40 NEXT
```

Note E This is a fun one:-

```
10 FOR FK=0 TO 95
20 CHA=FK+32
30 VPOKE &3B80+FK,CHA
40 NEXT
50 VPOKE &3B80+127,&FF
```

When you have RUN it press F0

Note F Not much to say about this yet. Hope to have some meaningful information soon.

Note G The last 64 bytes are not used, so can be used by you for storage of data if you wish to.

Note H If you haven't put in the routine for Note E do so before trying this one.

```
10 FOR SHA=256 TO 511
20 CHA=SHA-256
30 VPOKE &1800+SHA,CHA
40 NEXT
```

Run it and then press F0

Now you have seen how you can affect Video Ram, try playing around with the routines. You may be able to get a Partial Scroll, or it may give you an insight to Windows. Have fun.

~~~~~

### ROCKS

```
10 CLS
20 PRINT:PRINT:PRINT:PRINT:PRINT"          ROCK PAPER SCISSORS"
30 PRINT:PRINT"THIS IS THE OLD GAME OF ROCK PAPER"
40 PRINT"SCISSORS. YOU PICK ONE AND THE COMPUTER"
50 PRINT"PICKS ONE. THE COMPUTER WILL SAY WHO HAS";
60 PRINT"WON EACH GAME AND WILL ALSO KEEP A SCORE";
70 PRINT" OF THE GAMES."
80 PRINT"PRESS ANY KEY TO CONTINUE."
90 A$=INCH$:IF A$="" THEN 90
100 REM
110 CLS
120 CS=0:YS=0
130 PRINT"WHICH OF THE FOLLOWING DO YOU WANT?"
140 PRINT"1...PAPER"
150 PRINT"2...SCISSORS"
160 PRINT"3...ROCK"
170 PRINT"4...SCORE"
180 PRINT"5...FINISH GAME"
190 INPUT A
200 IF A=1 THEN 260
210 IF A=2 THEN 260
220 IF A=3 THEN 260
230 IF A=4 THEN 350
240 IF A=5 THEN PT=1:GOTO 350
250 GOTO 190
260 B=RND(3)+1
270 CLS
```

```

280 ON B GOTO 290,300,310
290 PRINT"I PICK PAPER":GOTO 320
300 PRINT"I PICK SCISSORS":GOTO 320
310 PRINT"I PICK ROCK"
320 IF A=B THEN PRINT"A DRAW. NO ONE WINS":GOTO 130
330 IF (A=1)*(B=3)+(A=2)*(B=1)+(A=3)*(B=2) THEN PRINT"WELL DONE
YOU WIN!":YS=YS+1:GOTO 130
340 IF (A=1)*(B=2)+(A=2)*(B=3)+(A=3)*(B=1) THEN PRINT"HOW ABOUT
THAT. I WIN!!":CS=CS+1:GOTO 130
350 CLS:PRINT"I HAVE SCORED ";CS;" POINTS."
360 PRINT"YOU HAVE SCORED ";YS;" POINTS."
370 IF PT=1 THEN PT=0:GOTO 390
380 GOTO 130
390 IF YS>CS THEN PRINT"WELL DONE. YOU WIN!!":END
400 IF CS>YS THEN PRINT"BAD LUCK I BEAT YOU. BUT DON'T WORRY
THAT OFTEN HAPPENS.":END
410 PRINT"A DRAW. NO ONE WINS.":END

```

~~~~~

FKEYS

A program to load the Einstein Function Keys. P. Burgess May 1986.

To complement Chris Giles's articles on Assembler, here is a short project with I hope, a fairly full explanation to help the numerous people who have written in requesting more on this subject.

There are several versions of KEYS around at present, but many users will probably want to make their own custom version. The ideal answer is to make the program read key definitions from a disk file. (Any takers?) - For now, we will take the easy way out and 'code in' the data. It only takes a few minutes to reassemble a different version, anyway.

FKEYS works by writing key messages into that part of the 40 - Column VRAM which is reserved for the purpose. Each key string is separated from the next by setting the high-order bit of its last character. We do this by the simple expedient of adding 80H (80 Hex.) to it. An 'End of Message' marker is also required: this is just a zero, 0H.

At the start of the program, after the comments, the first thing we have done is to define a 'Macro' (MCAL). This is just a simple way to write the we use MCAL. If your assembler doesn't support Macros, you'll have to put in RST 8 followed by the bytes for ZPRM or ZOUTC. These values are given in the EQU statements just below, along with convenient labels for carriage return and line feed. Next, we need an Origin (ORG) statement to tell the assembler to start at address 100H. This is the standard place for DOS programs to be loaded at.

So far, the assembler hasn't generated any machine code: it has just been accepting information for its own use later on. At line no. 27 executable code begins. MCAL ZPRM causes the MOS to output a message to the console for us. Lines 30 - 35 write out the address (7B80H) in VRAM to port 09H, in two 8 - bit bytes. Any data written to port 08H will now be stored in VRAM starting at 7B80H. To do this, the sixteen-bit HL register pair is used as an INDEX to the message \$KEYS. Line 37 (label KOUT) gets a byte from the memory location whose address is in HL. This is passed to the VRAM followed by a short delay which is required to complete the transfer. Then HL is incremented to point to the next location. A test is done at line 44 to see if the end of the message has been reached. If not, control returns to KOUT until all the characters have been sent.

Once the entire message has been sent, control 'drops through' to line 49, where a similar process is used to output it this time to the Console. MCAL ZOUTC is used: this outputs the contents of the 'A' register. A slightly different ending is used: when we reach the zero (which we do NOT want to send to the console, as it isn't printable) a RETURN instruction is executed.

Since the DOS has left its return address on the stack, this sends us back to the command level. That ends the actual program. The rest consists of the definition of the messages we want to send. Notice that you can program up to 16 definitions by using the function keys with SHIFT. You can, of course, program less than 16 as well. The ones shown here are the set I use for my System utility disc, but of course you should select your own most-used DOS commands and programs. Finally, you can insert FKEYS into the DOS command line to make it auto-execute, either with the System 5 utility AUTO, or via the MOS. (See previous EUG Newsletters.)

```

0100      1 ;*****
0100      2 ; PROGRAM FKEYS: Load the Einstein Function keys.*
0100      3 ; PB 8605200 V1.0. Hisoft 'Gen80' Assembler. *
0100      4 ;*****
0100      5 ;
0100      6 ;Outputs a string of characters in memory at $KEYS
0100      7 ; Notes: Terminate each key definition by setting
0100      8 ;         the top bit of the last character. Finish
0100      9 ;         the entire string with a zero.
0100     10 ;
0100     11 ; A useful Macro (in GEN80 only):
0100     12 MCAL      MACRO @PRM
0100     13          RST 8 ; MOS CALL (OCFH)
0100     14          DEFB @PRM
0100     15          ENDM
0100     16 ;
0100     17 ; Two useful MOS calls:
0100     18 ;
00CF     19 ZPRM      EQU 0CFH ; PRINT MESSAGE MCAL
009E     20 ZOUTC    EQU 09EH ; PRINT [A] MCAL
0100     21 ;
000D     22 CR       EQU 0DH  ; CARRIAGE RETURN
000A     23 LF       EQU 0AH  ; LINE FEED
0100     24 ;
0100     25          ORG 100H ; START AS USUAL
0100     26 ;
0100     27          MCAL ZPRM ; SIGN ON
0102     28 DEFB     "/KEYS: Programming.."
0116     29 DEFB     CR,LF+80H
0118     30 LD       A,80H ; ADDRESS PART 1
011A     31 OUT      (09H),A ; WRITE VRAM
011C     32 NOP ; DELAY
011D     33 LD       A,7BH ; ADDRESS PART 2
011F     34 NOP ; DELAY
0120     35 OUT      (09H),A ; WRITE VRAM
0122     36 LD       HL,$KEYS ; => TO STRING
0125     37 KOUT     LD     A,(HL) ; GET A CHAR.
0126     38 OUT      (08H),A ; O/P TO VRAM
0128     39 NOP ; TIME DELAY
0129     40 NOP ; ALLOWS VRAM
012A     41 NOP ; TO COMPLETE.
012B     42 NOP
012C     43 INC      HL
012D     44 CP       0 ; LAST ONE?

```

```

012F 20F4      45          JR    NZ,KOUT      ; NO, GET THE NEXT
0131          46 ;
0131          47 ; Output the programming string to CON:
0131          48 ;
0131 213F01    49          LD    HL,$KEYS      ; POINT TO KEYS
0134 7E        50 KLP      LD    A,(HL)      ; GET A CHARACTER
0135 E67F      51          AND   07FH        ; STRIP TOP BIT
0137 FE00      52          CP    0           ; END OF STRING?
0139 C8        53          RET   Z           ; YES, END
013A          54          MCAL  ZOUTC      ; ELSE ECHO TO CON:
013C 23        55          INC   HL          ; GET NEXT ONE.
013D 18F5      56          JR    KLP        ; REPEAT TILL 0
013F          57 ;
013F          58 ; Key programming strings:
013F          59 ;
013F 44495220  60 $KEYS    DEFM  "DIR 1"      ; KEY 0 (UNSHIFTED.)
0144 BA        61          DEFB  ":"+80H      ; SET THE HIGH BIT
0145 44495350  62          DEFM  "DISP 1"      ; 1
014B BA        63          DEFB  ":"+80H
014C 45524120  64          DEFM  "ERA 1"      ; 2
0151 BA        65          DEFB  ":"+80H
0152 50524F46  66          DEFM  "PROFOR B"    ; 3
015A BA        67          DEFB  ":"+80H
015B 434F5059  68          DEFM  "COPY 1"      ; 4
0161 BA        69          DEFB  ":"+80H
0162 45443830  70          DEFM  "ED80C B"    ; 5
0169 BA        71          DEFB  ":"+80H
016A 47454E38  72          DEFM  "GEN80 B"    ; 6
0171 BA        73          DEFB  ":"+80H
0172 4D4F4E38  74          DEFM  "MON80"     ; 7
0177 A0        75          DEFB  " "+80H
0178          76 ;
0178          77 ; The next 8 keys are (F0-F7) SHIFted:
0178          78 ;
0178 4449534B  79          DEFM  "DISK B"      ; 0
017E BA        80          DEFB  ":"+80H
017F 44554D50  81          DEFM  "DUMP 1"      ; 1
0185 BA        82          DEFB  ":"+80H
0186 4C4F434B  83          DEFM  "LOCK"      ; 2
018A A0        84          DEFB  " "+80H
018B 52454E20  85          DEFM  "REN 1"      ; 3
0190 BA        86          DEFB  ":"+80H
0191 4D38303D  87          DEFM  "M80=B"     ; 4
0196 BA        88          DEFB  ":"+80H
0197 00        89          DEFB  0           ; MUST END WITH ZERO.
0198          90 ; (Can insert more here.)
0198          91          END           ; END ASSEMBLY.

```

Pass 2 errors: 00

WARNING ORGs used: 01

Symbol Table used: £0085 out of £4500.

~~~~~

WHICH IS THE BEST WORDPROCESSOR ON THE EINSTEIN ?

Looking at the EUDB's listing of its 200 or so members "most used programmes", it is clear that most of use the Einstein as a wordprocessor.

It was the main reason that I bought "ours". I have to say ours as all the family use it, for all sorts of things, it is quite hard to control the demand sometimes. I needed it to write two major distance learning courses for which I was commissioned. No hint of the Amstrad PCW in December 1985 and the Einstein was only 40 cols with a 80 col card promised. At the time I bought it (at £500 + printer + monitor etc ie the best part of £1000 in the end) it was the best and most reliable machine around. It still is compared to the PCW with its screen wobbles and patchy looking printer output especially now it is possible to run Amstrad programs anyway.

I produced my first course on the 40 col version of wordpro, later getting the update to 80 cols. I bought Tasword/Tasprint to produce overhead transparencies for my lectures and simple handouts to go with them. With my typing speed that saved a lot of time. I also have Fydler's Personal Assistant.

As soon as I got the 80 col card I also got Surrey Software Services WP80 wordprocessor and combined spreadsheet. I did not really get time to get to grips with this due to pressure until the summer of 1985. It has since undergone several revisions, one of which was specifically at my request.

This revision was a procedure to convert to capitals any line or lines or even the whole text. This means I can produce overheads from any part of my text just by:- loading in the text file, killing all the lines I do not want for the OHT, using the simple width vary command to reduce to 35 cols, adjusting the format if I need to, setting in the hexadecimal codes for double width-double density printing and widening the line spacing to give good clarity (the codes can be seen on screen) and finally saving as a new file with the same name but extension OHT. This is then printed and photocopied on to acetate.

Peter Hampton of the company has written me a program to reformat all my carefully produced WDPRO files. This also enables me to pick up Tasword files. One of my colleagues has Wordstar and I can pick up his files direct. I have even checked my spelling on my WP80 files with his SPELSTAR dictionary and that works.

I feel reasonably confident due to my exposure to all the packages that I have used on the Einstein and the major packs eg WORD, WORDSTAR, OPEN ACCESS, etc that I have tried at my work, to report that WP80 is by far the best wordprocessor available on the EINSTEIN and I think on any IBM/Amstrad as well. Peter is constantly improving it and at present I am unable to think of any improvements other than the tutorial on screen that I have now provided for anyone who buys it.

It seems sensible to say what it has got as unique features and then compare it with the other packages. The unique features include on screen addition/subtraction, multiplication/division column totalling, subtotalling, vat calculation, spreadsheet result embedding, proof copy line-numbering for ease of correction, vertical repeat of character (for boxes etc.), space left and wordcount on screen, direct block manipulation via column and line numbers, and finally full disc search for string.

A key repeat-speed program means super typists can set this fast, or it can be set extra slow. Function key settings are made using a text file and several sets of function key settings are easily stored and accessed on the same disc.

COMPARISON OF WORDPROCESSORS AVAILABLE FOR THE EINSTEIN

KEY \*\*\*\*\* BEST \*\*\*\* GOOD \*\*\* WORKS \*\* DIFFICULT \* WORST

These are my gradings not official ones!

| FEATURES              | WP80       | WDPRO | WORDSTAR | TASWRD/PRNT | PERS ASST |
|-----------------------|------------|-------|----------|-------------|-----------|
| Ease of use           | *****      | ***   | *        | ****        | ****      |
| overall               | :          | :     | :        | :           | :         |
| Ease of use           | :          | :     | :        | :           | :         |
| commands              | *****      | ***   | *        | ***         | ****      |
| Ease of reformat      | :          | :     | :        | :           | limited   |
| -ting layout          | *****      | ****  | **       | ***         | no indent |
| File directory        | *****      | ****  | ****     | ***         | ***       |
| viewing               | :          | :     | :        | :           | :         |
| On screen format      | yes        | no    | yes      | yes         | yes       |
| 40/80 col vers        | both       | both  | 80       | 40          | 80        |
| combines DBasell      | yes        | no    | yes      | no          | no but    |
| & Cracker(dbf)        | :          | :     | :        | :           | datamate  |
| mailmerge/labels      | yes        | no    | yes      | possible    | yes       |
| standard              | :          | :     | :        | :           | :         |
| special print         | no         | no    | no       | yes         | no        |
| <u>ON SCREEN</u>      | :          | :     | :        | :           | :         |
| wordcount             | yes        | no    | no       | yes         | no        |
| "space left"          | yes        | no    | no       | yes         | no        |
| line/col No.          | yes        | no    | yes      | yes         | no        |
| arithmetic            | yes        | no    | no       | no          | no        |
| VAT                   | yes        | no    | no       | no          | no        |
| spreadsheet inc.      | yes        | no    | no       | no          | no        |
| lower/upper conv      | yes        | no    | no       | yes         | no        |
| repeat vert. ch.      | yes        | no    | no       | boxes       | no        |
| func key progr.       | yes        | yes   | no       | no          | no        |
| help page             | yes        | no    | yes      | yes         | yes       |
| <u>CURSOR MOVEMNT</u> | *****      | ***   | ***      | ****        | ***       |
| search/replace        | unlimited  | 16 ch | ?        | 1 line      | 10?       |
| block copy            | direct by: | :     | :        | :           | mark      |
|                       | lne & col: | mark  | mark     | mark        | down      |
| <u>PRINTING</u>       | :          | :     | :        | :           | :         |
| file merge            | yes        | no    | yes      | no          | yes       |
| lne no. for proof     | yes        | no    | no       | no          | no        |
| headers               | yes        | yes   | yes      | no          | no        |
| page no. at will      | yes        | yes   | yes      | yes         | no        |
| auto para renumb      | no         | yes   | no       | no          | no        |
| set in prnt codes     | yes        | yes   | yes/no   | no          | yes/no    |
|                       | :          | :     | :        | :           | :         |

The price is only £ 95.00 including VAT for something far better than Wordstar and a great deal easier to use, and it is British! I would be happy to discuss this with anyone other than irate wp writers who think I have not done them justice. Happy processing.

JOHN BOTHAMS (UKEUG 1093) 1/10/86  
 61 CRAWHALL CRESCENT  
 MORPETH  
 NORTHUMBERLAND NE61 2RH  
 0670 55499

NB Surrey Software will have an exhibit at the show!  
 (subject to confirmation ED)

LETTERS

7 The Crescent  
Hyde Park Corner  
Leeds  
LS6 2NW

Assuming the UKEUG is still viable, I enclose a cheque for £6.00 to cover my next 6 months membership.

Would it be possible to obtain a copy of the newsletter covering suitable modems for the Einstein, I have mislaid mine, I think it was the March issue.

Good luck and keep up the good work.

Yours Sincerely

J.B.Menaugh

P.S. Do you know anyone who has tried the Brother daisy wheel printer with the Einstein. (Mod RH10 £199)

P.P.S. Have you any information re the continuance of the Einstein as a machine or is it to vanish beneath the waves as so many others do.

Reply. Somebody's out of touch. Membership now runs for one year and as such now costs '15.00, cheap at half the price. Yes backcopies are still available but there is sometimes a delay whilst we re-print them.

A PLEA????? DOES ANYONE OUT THERE USE THE BROTHER HR10 !?!?!?

-00-

MOLEWOOD HOUSE  
MOLEWOOD RD.,  
HERTFORD  
SG14 3lt

I wonder if any of your members can help (They are not 'your members' they are 'ours' ED) I have been struggling with the Micro-Simplex program for some time, before realising it does not answer all my needs, besides getting some very conflicting advice from them on their HOT-LINE, which not only might prove expensive for me but the hours I have wasted have obviously been to very little advantage.

I have also investigated the Quest Trader, which quite frankly, baffles me and although they claim that their program is made for the non accountant, I feel that you not only have to be an accountant, but one with the mind of a Cryptographer.

Perhaps there is someone living near me who might want to help. It is because I understand very little about accounting that I need to use a computer to give me an analysis without having to seek information from my Chartered Accountant who perhaps sees my accounts at the end of the year and I would only receive his deliberations after a delay of some months, so by that time it is all too late.

My business is quite small and I do not give credit, so therefore no invoicing. My difficulty lies in my type of business which is antiques and has a few unusual nuances in VAT and purchasing.

Perhaps some of your members have had experience in these two aforementioned programs and could help me to tackle my problems or could recommend another program?

I would be grateful for your help.

Yours Sincerely

A.F.Oakley.

P.S. I use an Einstein with 2 drives and a BROTHER M-1109 printer. Try contacting Mr. Menaugh about the printer, he may want your help.

As for recommending another program, have you been in touch with PEACH SOFTWARE they are particularly good at tailoring their existing programs to your own requirements and we have it on good authority that they are not only reasonable but also very good.

-00-

Hate to be a sour lemon mate but I must express my disappointment at the latest news-letter.

I don't know exactly the number of people who have Pascal or - even less those who know how to use it - but it must represent a very small proportion of EINSTEIN owners. There was absolutely NOTHING in the last newsletter for the majority of club members.

I feel it would have been an act of human kindness if the guy who wrote this program had made a disc available thus releasing the news-letter for items of more common interest.

I'm sure you must agree that you went from the sublime to the ridiculous on this occasion with an article aimed at "Idiot 3rd. class" to "Technician 2nd. class" and nothing in-between.

Please don't mis-understand me Keith. This letter is in no way a rebuke but rather an attempt at constructive criticism. I would hate to see the UKEUG going the same way as the "BRAIN" who waffled on for god-knows how many pages about laser printers on the assumption that EVERYONE was conversant with the technical problems involved.

Geo.

Reply. I must admit that I feel very much as you do about the most recent news-letter, but we can only put in what is sent to us for publication, and that month there were very few contributions. The more suggestions we get about what you WANT the more likely it is that we can supply. We have about 35% of our correspondence about Pascal and so it must be high on the list of things to talk about, or those who use Pascal are the most communicative about it. We realise that those of you who are new will probably be the ones who are most reticent about writing in, but if you don't tell us what you want, we can't print it.

A lot of the material is written by Keith and myself, and I can assure you that it is not easy to fill 24 pages with information every month. We have put in a lot of time trying to build a backlog of stuff to make sure this doesn't happen again.

Chris Giles.

~~~~~

This letter is a follow up to the telephone call the other day.

You should find a copy of this letter and the article on wordprocessors on the enclosed disc. You will also find a cheque for my subscription.

I understand from Peter Hampton that he is intending to take a stand at your exhibition. (To be confirmed ED.)

I hope you will be able to return my disc with a copy of the listing of the UK map.

My enthusiasm for what Peter provides is great. The Utility Disc he has provided is exceptionally good value. My accounts colleagues think his accounts program is the best they have seen. Like most programmers his weakness is in explanation in the manual but is much better than LOCOSCRIPT and many others.

That is why I have provided a screen tutorial and professionally I know most people learn by doing to start with.

Looking forward to seeing the article in print and learning more about your silicon disc offer. Your enthusiasm for the Einstein and its users is very impressive.

Best wishes
JOHN BOTHAMS

~~~~~