The MEMOTECH OWNERS CLUB Magazine

```
XXXXX              XXXXX   XXXXXXXXXXXXXXXXX   XXXX       XXXX
XXXXXX            XXXXXX   XXXXXXXXXXXXXXXXX   XXXX       XXXX
XXXX XX          XX XXXX          XXXXX        XXXX     XXXX
XXXX  XX        XX  XXXX          XXXXX         XXXX   XXXX
XXXX   XX      XX   XXXX          XXXXX          XXXXXXXX
XXXX    XX    XX    XXXX          XXXXX           XXXXXX
XXXX      XXXX      XXXX          XXXXX            XXXX
XXXX               XXXX          XXXXX           XXXXXX
XXXX               XXXX          XXXXX          XXXXXXXX
XXXX               XXXX          XXXXX         XXXX   XXXX
XXXX               XXXX          XXXXX        XXXX     XXXX
XXXX               XXXX          XXXXX       XXXX       XXXX
XXXX               XXXX          XXXXX      XXXX         XXXX
```

FEATURES:-

WIN COBRA IN A FREE COMPETITION

ASSEMBLER PROGRAMMING PART II

OBTAIN DISCOUNT AT SELECTED OUTLETS

GRAPHICS DEMONSTATIONS

EDITORIAL

Phil Eyres
23 Denmead Road
Harefield
Southampton
SO2 5GS

Richard Adams
18 Nightingale Rd
Pilands Estate
Bursledon
Southampton

At the recent P.C.W. show we spoke to Mr. Alan Fish of Elstree Computer Centre, he demonstated to us several cassette based business programs that he is marketing. There are 7 programs of which some are available now and the others we were assured would be available in the near future, they are:-
   1. Database
   2. Home Expenses
   3. Customer Information File
   4. Business Expenses
   5. Invoice & Credit Note
   6. Stock Control
   7. Pro-Calc Financial Spreadsheet
For further details write to Alan at Elstree Computer Centre, Elstree Aerodrome, Elstree, Herts.
                    ****
The winner of last months Maxima program is Mr P. WOOD of Worcester. Congratulations!!!
The correct answers are:
   1. The Z80A CPU has a clock speed of 4MHz.
   2 The Memotech has 16K of VRAM.
   3. It also has 8 Virtual Screens.
   4. An Algorithm is a set of steps for performing a task.
   5. CP/M stands for:- Control Program for Microprocessors/Monitor

Also the winner of The Memotech Program Book by Peter Goode is Sean Clark of Criccieth, Gwynedd.
                    ****
We would like to thank everyone for all there contributions, we will try and publish as many as possible given time. Also many members have asked if we would accept reviews, well, so that we don't get reviews of the same software, if anyone interested would like to send us a list of software they would like to review, then we can ensure duplicates do not occur.

If anyone would like back issues (or even further copies!) they are obtainable from us for a small remittance of 80p.

Don't forget about our Hotline, If you would like to tell us what you think of the mag or anything else, why not call on any Monday between 6 and 7pm. The number is Bursledon (042121) 5489. Look forward to hearing from you, Richard.

It should be noted that all articles that are published are the copyright of the sender and M.O.C..

                    Phil Eyres, Rich Adams

1

This program adds two more variables to the previously published
program and produces yet more interesting polygons.

```
5 LET R=0: LET Q=2*PI
10 INPUT "SYMMETRY";S
20 LET A=Q/S
30 INPUT "SCALE";L
40 INPUT "M";M
50 INPUT "F";F
60 VS 4: CLS
70 LET X=128: LET Y=95: PLOT X,Y
80 FOR H=1 TO S
90 FOR I=1 TO S
100 FOR J=1 TO 2
110 FOR K=1 TO M
120 ANGLE R: DRAW L
130 LET R=R+A
140 IF R>Q THEN LET R=R-Q
150 NEXT K
160 LET R=R+Q/2-A
170 IF R>Q THEN LET R=R-Q
180 NEXT J
190 LET R=R+F*A
200 IF R>Q THEN LET R=R-Q
210 NEXT I
220 LET R=R+F*A
230 IF R>Q THEN LET R=R-Q
240 NEXT H
250 PAUSE 4000: GOTO 5
```

The program first asks for four parameters, these are:-
SYMMETRY   how many sides would a complete polygon have
SCALE   length of the sides
M & F   these determine the actual form of the design

As a guide, some good numbers to try are:-
5,15,3,4   7,8,5,5   8,20,7,2   12,8,6,9   6,8,4,7

The effects produced by this program can be very varied and are
virtually unpredictable. Incidentally, although six-fold symmetry
occurs widely in nature i.e. snowflakes etc, this particular
program does not seem to do very well with this number, but it
does better designs with 5,7 and 8.

The introduction of colour could prove interesting, especially
when displaying composite patterns of different scales,M and F
but keeping the same related symmetry.

As before if a line goes off the screen then an error will occur,
this can be rectified by typing CLS <RET>, then try 'running'
again with a smaller scale.

PHIL

ASSEMBLER PROGRAMMING

PART II

Continuing from last month we will just have a quick look at converting Binary to Decimal then progress onto Two's Compliment.

Converting Dec to Binary

As before with the convertion of Dec to Hex we just pick on a number, say 65 and do the following calculation:-

```
2 | 65        (Divide 65 by 2, the remainder is 1)
2 | 32   1    (Divide 32 by 2, the remainder is 0)
2 | 16   0    (Divide 16 by 2, the remainder is 0)
2 |  8   0    (Divide......etc)
2 |  4   0    ( "         "    )
2 |  2   0    ( "         "    )
2 |  1   0    (Divide 1 by 2, the remainder is 1 )
2 |  0   1
```

Therefore 65 (Dec) is eqiuvalent to 0100 0001 (Binary)

Converting Binary to Decimal

Using 65 for convenience :-
$$0100\ 0001 = (0*2^7)+(1*2^6)+(0*2^5)+(0*2^4)+(0*2^3)+(0*2^2)+.....$$
$$.....+(0*2^1)+(1*2^0)$$
$$= 64+1$$
$$0100\ 0001 = 65$$
This has reversed the Dec to Bin operation.

This is fine, quite simple in fact, but there is a slight problem which does make things a little complicated, the problem is Two's Compliment, this involves understanding how a computer handles negative numbers. i.e.
1111 1111 in Decimal would equal 255 but, in signed arithmetic it equals -1. Let's have a look at Two's Compliment in order to try and clarify.

Two's Compliment

The computer cannot subtract or recognise plus and minus signs, only 1's and 0's, so it is necessary to know how subtraction is performed and how signed numbers are represented.

Well, going back to basic maths, we know that three numbers are involved in subtraction:- the minuend, the subtrahend and the difference. The subtrahend,s, is subtracted from the minuend,m, to form the difference,d, expressed thus:-

$$m-s=d$$

But the computer cannot indicate the "-" sign, so by definition I'll explain how to make a negative number look positive:-

The negative of a number is that which when added to the number equals 0.

i.e. $5+(-5)=0$

Cont'd overleaf

Now in binary it is possible to express (-5) in terms of +5.
i.e. 5=0000 0101 and it's compliment is $\overline{5}$=1111 1010
N.B. To Compliment a number just reverse the value of each bit.

$5+\overline{5}$=1111 1111 or FF(hex)
Since adding 1 will give 00 (with the carry flag left set) we can
see that :-

$5+(\overline{5}+1)=0$
The Compliment of 5 is $\overline{5}$ and adding 1 to this number produces the
Two's Compliment.
So if M is an 8-bit binary number then it's negative is $(\overline{M}+1)$.
If M=1 or 0000 0001 then -M=1111 1111 or -1.
Using this signed arithmetic instead of one byte being able to
hold any number from 0 to 255 it can hold numbers from -128 to
+127(including 0).
I think that perhaps it is now best to try and demonstrate the
theory practically.
Type the following:-
ASSEM 10 <RET>,<RET>
8007 LD A,27 <EOL>,<RET> (EOL is the top centre key on the)
8009 ADD A,16 <EOL>,<RET> (key pad)
800B SUB 48 <EOL>,<RET>
CLS <RET>
CLS <RET>
Now if we enter PANEL (type PANEL <RET>) we will be able to step
through the program, there are a few things to set up first to
make this possible.
   1. Not absolutely necessary but if you want to see your program
type L (computer responds with List>) you then type the memory
location you would like to list from, in this case 8000<RET>.
   2. Move the register curser to PC (Program Counter) this is
done by pressing the (.) key five times.
   3. To set the PC to 8007 (the beginning of the program) type R
then 8007 <RET>.
We can now single step through the program by pressing the (S)
key.
Pressing 'S' once will result in 1B in the A register (or
Accumulator),(27 is 1B in Hex),Pressing 'S' again will put 2B in
A and believe it or not 2B is equal to 27+16or(43).Pressing 'S'
the last time will execute the code at 800B (SUB 48),now since A
only has 43, subtracting 48 will leave a result of -5 in A. You
will probably also notice that there are three letters above the
registers, These signify the state of the Flag register, in this
case the Sign bit, Negative bit and the Carry bit are set. Don't
worry if you do not understand what these mean or do as i'll
explain these later.

It is a good idea to try adding and subtracting different numbers
and then try and predict the state of the Accumulator.

Next month we'll have a look at the Arithmetic Operations.

                              Phil

                                4

GRAPHIC DEMONSTRATIONS

The Memotech machines are blessed with a great many graphic commands. The three programs (two this month one next month) accompanying this article utilize them to a great extent and I hope that the way they have been used will help you to understand just what they can do.
With all of the programs don't type the first line until you have typed in the rest and you are sure that the program works.

SQUARES

The first program is called "squares", and surprisingly enough it draws squares. However, these squares are a little different from one another. Firstly, the length of each side gradually increases, and secondly the sides are inclined at very slightly more than right angles to one another. These differences combine to provide the effect of a twisting tunnel or bent pyramid or whatever your mind makes it.

SQUARES
~~~~~~~

```
90 SAVE "SQUARES"
100 VS 4
110 PAPER 1
120 CLS
130 COLOUR 4,4
140 INK 13
150 ANGLE 0
160 PLOT 128,96
170 FOR A=1 TO 160
180 PHI PI/2+0.01
190 DRAW A
200 NEXT
210 PRINT CHR$(7)
220 GOTO 220
```

Program lines:-
90   Auto-run the program on loading
100-150   Set up screen
160   Establish starting point
170-200   Draw progressively longer lines
210   Chime
220   Maintain graphic display

On the next page is the second program in the series of three provided by Mark Cytera.

Mark also asks "I wonder how many of us there are now?", well, at the last count there were 140 and new members are still arriving with every post. We should also be appearing in some magazines soon so hopefully that will boost our numbers.

SPIROPLOT

Spiroplot is rather like Spirograph, except instead of choosing different sizes of plastic circles with holes in the middle, you type in numbers. Varying the first two numbers will produce different patterns on the screen. Rare combinations may cause the computer to draw off the screen and an error will result. For the colour number, a table of colours and their corresponding numbers is available on page 18 of the manual.

<p align="center">***SPIROPLOT***
~~~~~~~~~</p>

```
5 SAVE "SPIROPLOT"
10 VS 5
20 PAPER 1
30 CLS
35 INK 12
40 CSR 14,0
45 PRINT "SPIROPLOT"
50 CSR 14,1:PRINT "_____"
55 PRINT
60 INPUT "DISC SIZE (0 TO 75): ";B
70 IF B>75 OR B<0.01 THEN GOTO 60
80 INPUT "LOCUS POSITION (0 TO 1.5): ";M
90 IF M>1.5 OR M<0.01 THEN GOTO 80
95 INPUT "FOREGROUND COLOUR (0 TO 15): ";COL
100 VS 4:PAPER 1: CLS
102 INK COL
105 LET X=0: LET Y=0
110 LET A=-75: LET C=A+B: LET Q=0
120 REM REPEAT FOR EVER
125 LET OX=X: LET OY=Y
130 LET X=C*COS(Q)-M*B*COS(C*Q/B)
140 LET Y=C*SIN(Q)-M*B*SIN(C*Q/B)
150 IF Q<>0 THEN LINE X+128,Y+96,OX+128,OY+96
170 LET Q=Q+B/80
180 IF INKEY$<>"S" THEN GOTO 120
190 GOTO 10
```

```
Program lines:-
5          Auto-run on loading.
10-55      Set up text screen.
60-95      Enter data.
100-110    Set up graphics screen, initialise variables.
120-180    Drawing loop.
190        Restart.
```

Both these programs were written by Mark Cytera of Patchway Bristol, his third program "Sateloids" will be included in the next issue due to the fact that its a couple of pages long. He has also provided a graphics definer program which we will publish as soon as possible.

Many thanks for your error-free articles,

<p align="right">Phil & Rich</p>

Firstly, we have had several answers to the problem of getting out of the Forest in Alice And Wonderland, all described roughly the same approach but Ray Morrissey's was in our opinion the best, it in fact came in the form of another clue which read:-
"The steps to take are written plain, Four times round then North again".
Quite 'corny' but never the less correct.
Also David Chambers has found a good way of gaining a few extra clues:- Break program with reset keys, then POKE 64167,1 and list 4031.

re. letter from L.Whalley about machines suffering from Keybounce
One way of dealing with the problem involves disabling the keyboard Auto-repeat by POKEing INTFFF(64862dec) 139.This makes Bit 2='0'; Manual page 182 refers.
John Bennett Herne Hill, London.

Q. I have just finalized a business program to print out Invoices, Statements and Quotations. My only remaining problems are Decimal Point Tabulation to give neat printout to two or three decimal places; Horizontal and Vertical tabulation; and Skip Perforation on the Memotech DMX Printer. Can anyone help?
Ian Pellicano B'Kara, Malta.

Hints & Tips. When writing a program it is sometimes nice to know how much memory you've used, at the end of your program add a CODE line (Using ASSEM instruction), there is no need to type in any code just enter the assembler then exit again, when you list your program the last line will read like this:-

LINE NUMBER CODE————————100 CODE
HEX ADDRESS RET————————440F RET

Then by subtracting 4000H from the above address you obtain the program length in hex, and by using your Assembler Programing Part I it should be easy to convert to decimal.
L.R.WHALLEY Beeston, Notts.

Answer to a Request for a Screen Dump Routine:-
We have had several programs all of which have been a great help, Tony Gilletts of Swaythling Southampton follows:-
```
5999 STOP
6000 VS 4:LPRINT CHR$(27);"3";CHR$(12);
6001 FOR Y=191 TO 0 STEP -8:LPRINTCHR$(27);"K";CHR$(255);CHR$(0);
6002 FOR X=0 TO 255 : LET A$=GR$(X,Y,8)
6003 LPRINT A$;:NEXT:LPRINT:NEXT
6004 RETURN
```

Also with the following modifications it will print the full width of the page:-
```
6001 FOR Y=191 TO 0 STEP -4: LPRINT CHR$(27);"K";CHR$(0);
     CHR$(2);: FOR X=0 TO 255: LET A$=GR$(X,Y,4)
6002 LPRINT A$;A$;: NEXT: LPRINT :NEXT
```

YOUR LETTERS CONT'D

Has anyone got an assembler subroutine that we could use to print out graphics (preferably double width) as to produce 150 graghic designs on our front cover using basic is to say the least hard work.
Phil Eyres

Q. Do you know if it's possible to add extra commands to the basic? it may have somthing to do with the bytes at the top of the memory map starting at FFEE (Hex) which Memotech call OVERLAY Also, do you know how to use the undocumented command, USER? Has it got anything to do with FA89 (Hex).
Mark Cytera Patchway Bristol

I suppose the letter that we received from Barry Hall of Ely Cambs. could be classed as Hints and Tips or even just interest, it reads as follows:-
Recently my 512 developed a couple of faults, the dealer I purchased the 512 from no longer handles Memotech so I contacted Memotech who invited me to their factory in Witney.
I was dealt with very courteously by Tim Spencer who suggested that i leave my 512 with them in order for the faults to be repaired and to update the machine with their latest modifications(unexpected and free of charge). I was told the 512 would be delivered two days later, some 100 miles and it was!
I was given some software free of charge as I had to return home without my 512. Altogether a superb service!.

ADVERTISEMENT

8

COBRA

		Rating System	
Publisher	Xaviersine 48 High Street	Excellent	=5
	Midsomer Norton, Bath.	Average	=3
Price	£6.95	Poor	=1
Outlets	Mail Order & Dealers		

This is Xaviersine's first games tape, it follows the old basic idea of manoeuvreing your snake (Cobra) around the screen gobbling the fruit and missing the rocks which, after some time become rather abundant. There is a time factor which is displayed at the top of the screen, when it reaches 300 things become somewhat difficult as all uneaten fruit turns to rock you then have to survive for a further time count of 200. At 500 you proceed onto the next level where the outer walls change shape slightly making movement more difficult. You have three lives with which to obtain your high score which will be displayed, along with your initials at the beginning of each game.

Conclusion

Cobra is quite addictive once you manage to overcome the initial difficulty of moving your snake the right way at the right time. There are 12 levels of play and the value of the fruit you eat is multiplied by your present level. All in all quite a good game.

RATING:
Playability = 4
Graphics = 3
Value For Money =3
Lasting Interest =3

~~~~~~~~~~~~~~

In last months mag we included an article on the Sound command in our letters column, unfortunately we neglected to include the 7th parameter to the variable list, this last parameter should be either a 1 or 0, a description of the use of parameter 7 can be found in the manual on page 126. Also the second variable, Frequency, should be made larger,(i.e. 1000) to make the tone audible.

~~~~~~~~~~~~~~

Next Month..........

The graphics demonstations will continue with a Sateloids program. Hopefully we will also have a Dec/Hex Hex/Dec converter.
The Assembler Programming will continue, but may be something slightly different!
We also have an idea for a Software Library which we will be trying to get started.

The November issue is due out in the second week of November.

CONCLUSION OF BRUNWORD WORDPROCESSOR REVIEW

Continuing on from last month, the program supports most of the functions of larger disc versions. These include "Tear", which saves data between two markers in memory, "Remove", which deletes between two markers and "Weave", which means that you can make up a letter or document from standard paragraphs saved in memory.

To Right Hand Justify a paragraph, you just put the cursor to the first line and press CTRL B and you then have all your text in line. You can also clear all or just certain parts of memory and look for certain phrases in documents.

For people who received their copy of Brunword before 20/9/84 Brunword have slightly updated the formatting routine. If you would like your copy updated please send it back with £1.50. Please don't forget to include your name and address when you send the tape back!!!!!!!!......

For your copy of Brunword, send a cheque for £14.62 direct to: BRUNNING SOFTWARE. 34 Helston Road, Chelmsford, Essex, CM1 5JF.

****

"Which Micro and Software Review" are running an article on extra commands on the Memotech in their October issue. Well worth buying the mag this month.

****

UTILITIES NOW AVAILABLE

The long awaited for Utilities Program from Memotech is now available. The utilities are Renumber, Hex to Dec to Bin conversions, Data load and Save and 40 col graphic characters.

We have negotiated a deal with Memotech whereby we can now offer software to our members. If you would like a copy of Utilities, send a cheque to M.O.C. for £4.50 fully inclusive.(RRP £4.95)

We can also offer the full range of software available from Memotech. For example:

Mission Alphatron   £6.50
Obloids   £6.50
Lords Of Time   £9.00
Gauntlet   £6.50
All these prices are fully inclusive of P&P etc.

Just a quick little tip to fill a spare corner!!
When you are using the Sound commands, you are often left with continuous sounds switched on. Instead of typing SOUND 0,0,0 etc. to switch them off, try CTRL G. This should switch all sound channels off.
(Many thanks to Silversprite for this info.)