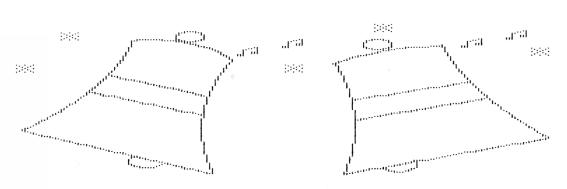
VOL. 1 ISSUE 4

DECEMBER 1984

The MEMOTECH OWNERS CLUB Magazine

MERRY SMAS AND HAPPY NEW YEAR



FEATURES: -

ASSEMBLER UTILITY

INTERFACE THE MTX

FREE TO ENTER COMPETITION

PUBLISHED BY MEMOTECH OWNERS CLUB
23 DENMEAD ROAD
HAREFIELD SOUTHAMPTON

EDITORIAL

This month we have an advert from Micro Technology Support Centre you will probably notice that their prices are pretty good!, i suppose you could call them a sort of January sale.

Brunning Software have decided to reduce their discounts on Brunword to 15% making the price of their Wordprocessor £16.57 inclusive. They also informed us that they have a new program nearly ready for release called Datafile, as yet we do not know the price but as soon as it's available we will supply full details.

We recently received two tapes from Solway Software of 13 Hensington Road, Hensington, Whitehaven, Cumbria, CA28 8PS, one is an arcade style (snake type) game the other is an Adventure game, both represent excellent value at £3.50 each inclusive of $p&p.(RRP \pm 4.50)$.

P.S. The arcade ones called CHARMKATZ and is very good.

For the first time this month we can offer help to members interested in starting to learn about doing their own interfacing, we have on offer a connector for the internal ports previously unobtainable. (See page 7).

We have two more programs to add to our software library:—CGEN:— This is a very good program which generates sprites, deplays them, allows you to edit them again and then offers the Genpat codes for screen output and/or printer output.

3D:— This program first draws a 3 dimensional dish on a saucer and then offers you a choice for the plane of rotation (x,y,z) or to Move In/Move Out.

There is some new software available which as yet we have not had time to review, these tapes are:-

Music Pad £6.50 incl The Zoo Game £6.50 incl Pontoon &Blackjack £5.50 incl

We also have some Dust covers in stock(to stop dust getting around you key contacts and causing bad connections), their normal recommended price is £4.95, special offer this month only, £4.30 incl.

Please remember all articles that are published are the copyright of the sender and M.O.C.. Should anyone like to re-publish any article please let us know.

The Hotline number still remains at (042121) 5489, please don't ring over the christmas unless necessary. We also suggest that anyone thinking of buying any hardware should get in touch with us to find out our latest prices. (Sorry no news as yet on the 100K and 250K discs!).

This just leaves us to wish you all a Merry Christmas and a very happy New Year.

PROGRAM

```
This interesting games program was sent to us by Robbie Robinson.
5 REM "FARMER" BY D ROBINSON
10 LET L=INT(RND*3+5)
20 LET P=INT(RND*60+40)
30 LET M=INT(RND*50+10)
40 LET FB=INT(RND*40+80)
50 LET CE=INT(RND*40+80)
60 LET C=0: LET S=1: LET Y=1
70 LET LP=INT(RND*2000+2000)
80 LET CP=INT(RND*12+7)
90 CLS: CSR 10,10: PRINT "FARM MANAGER"
100 FOR T=1 TO 1000: NEXT
110 CLS
120 PRINT "YEAR";Y
130 PRINT: PRINT "THERE ARE"; P; " PEOPLE ON THE FARM"
140 PRINT "YOU HAVE"; L; " FIELDS AND $"; M
150 PRINT "SATISFACTION FACTOR";S
160 PRINT: PRINT "YOUR FIELDS PRODUCE"; CE; " TONS EACH"
170 LET C=C+CE*L
180 PRINT "GRAIN IN STORE=";C;" TONS"
190 PRINT: PRINT "GRAIN SELLING PRICE="; CP
200 PRINT "FIELD SELLING PRICE=";LP;"/FIELD"
210 INPUT "HOW MUCH GRAIN TO SELL"; CS
220 IF CS<O OR CS>C THEN GOTO 210
230 LET C=C-CS: LET M=M+CS*CP
240 INPUT "HOW MANY FIELDS TO SELL"; LS
250 IF LS<0 OR LS>L THEN GOTO 240
260 LET L=L-LS: LET M=M+LS*LP
270 PRINT: PRINT "YOU HAVE $";M
280 PRINT: INPUT "HOW MUCH PAY (APPROX. $100ea)":FB
290 IF FB<0 OR FB>M THEN GOTO 280
300 LET M=M-FB
310 IF FB/P>120 THEN LET S=S+.1
320 IF FB/P<100 THEN LET S=S-.2
330 INPUT "HOW MANY FIELDS TO BUY"; LB
340 IF LB<0 OR LB*LP>M THEN GOTO 330
350 LET L=L+LB: LET M=M-LB*LP
360 IF Sk.6 THEN GOTO 570
370 IF S>1.1 THEN LET CE=CE+INT(RND*20+1)
380 IF S<.9 THEN LET CE=CE-INT(RND*20+1)
390 IF P/L<10 THEN 60TO 580
400 IF S>1.1 THEN LET P=P+INT(RND*10+1)
410 IF S<.9 THEN LET P=P-INT(RND*10+1)
420 IF P<30 THE GOTO 590
430 IF RND>.01 THEN GOTO 470
440 PRINT "DROUGHT.....MANY SACKED"
450 FOR T=1 TO 1000: NEXT
460 LET P=INT(P/2)
470 IF CE<150 THEN GOTO 510
480 PRINT "MARKET GLUT - PRICE DROPS"
490 FOR T=1 TO 1000: NEXT
500 LET CE=INT(CE/2)
Cont'd Overleaf
```

```
510 LET Y=Y+1: IF Y<11 THEN GOTO 70
520 PRINT "YOU HAVE SERVED YOUR CONTRACT"
530 PRINT: PRINT "ANOTHER GO (Y/N OR L=LIST)"
540 LET A$=INKEY$: IF INKEY$="Y" THEN RUN
550 IF A*="N" THEN CLS: NEW
555 IF A$="L" THEN CLS: LIST
560 GOTO 540
570 PRINT "THE PEOPLE REVOLTED": GOTO 530
580 PRINT "YOU HAVE UNDER PAID EVERYONE": GOTO 530
590 PRINT "NOT ENOUGH PEOPLE LEFT": GOTO 530
The following lines are a variable list for the Farmer program:-
L=NUMBER OF FIELDS
P=NUMBER OF PEOPLE
                         ;The only thing that took me some time
M=MONEY
                         ; to discover was how much to pay the
                         ;workers, as an example if you have 50
C=GRAIN STORE
S=SATISFACTION OF WORKERS; workers and you pay them $100 each
                         ; then the total amount input should be
Y=YEAR OF CONTRACT
CE=GRAIN PRODUCED PER FIELD ; $5000.
CF=GRAIN SELLING PRICE
CS=GRAIN TO SELL
LP=FIELD SELLING PRICE
LB=NUMBER OF FIELDS TO BUY
                                 Thanks Robbie!!!!!!
LS=NUMBER OF FIELDS TO SELL
FB=PAY TO WORKERS
Richard Dennis has sent us two useful Assembler routines, the
first is a Software keyboard debounce the second, on page's 6%7
is a PANEL utility.
;Keyboard Debounce Routine by Richard Dennis
          LD HL, £B000; ****CHANGE THIS TO RELOCATE ELSEWHERE***
          PUSH HL
          PUSH HL
          LD HL, £FD51; TRANSFER USERIO TO PROGRAM
          LD DE, JKBD
          LD BC,3
          LDIR
          LD HL, BEGIN; RELOCATE FROM BEGIN TO HIGH MEMORY
          POP DE
          LD BC,£80
          LDIR
          POP HL; CHANGE USERIO TO RELOCATED MEM. FOR K'BOARD D'B
          LD (£FD52),HL
          PUSH AF; DEBOUNCE ROUTINE STARTS HEAR
BEGIN:
          PUSH BC
          LD B,10; SET IDLE1 LOOP
IDLE1:
          PUSH BC
          LD B, £FF; SET IDLE2 LOOP
IDLE2:
          DJNZ IDLE2
          POP BC
          DJNZ IDLE1
          POP BC
          POP AF
          DS 3;OLD USERIO JUMP TO RETURN TO KEYBOARD SCAN ROUTINE
JKBD:
          RET
```

ASSEMBLER PROGRAMMING PART IV

Last month I included details of the RST 10 commands, well John Hodgson has included some more details which will, amongst other things solve the problems with using the SPRITE command through RST 10. This information can be found in the Letters pages.

I would like to demonstrate that although RST commands appear to be easy to use (once you have got the hang of them!!) they are in fact still not making the full use of the machines speed. There are following, two programs which do approximately the same thing, they fill the screen with '*'s. The first is a RST 10 version, you'll notice how short it is, it is faster than basic but not as fast as the second program, this program accesses the VDP and VRAM directly and so is of optimum speed.

```
; RST 10 Screen fill routine.
; CLS Before entry
          LD B,48
LOOP:
          RST 10
          DB £94,"***************
          DJNZ LOOP
          RET
; Alternative Screen fill routine
          LD DE,7168; TOP L/H CORNER OF TEXT SCREEN
          CALL VSET
          LD IX,960 ;LOOP COUNTER
          LD E,42 ; NUMERICAL VALUE OF "*"
LOOP:
          CALL VOUT
          DEC IX
          PUSH IX
          POP BC
          LD A, B
          CP 0
          JP NZ,LOOP
          LD A,C
          CP O
          JP NZ, LOOP
          RET
VSET:
          PUSH AF
                    ;SET UP VRAM ADDRESS POINTER FOR DATA OUT
          LD A,E
          OUT (2),A
          LD A, D
          OR 64
                    ; SET WRITE TO VRAM MODE
          AND 127
          OUT (2),A
          POP AF
          RET
VOUT:
          PUSH AF
                    ; OUTPUT BYTE TO SCREEN
          LD A,E
          OUT (1), A CONT'D OVERLEAF
```

POP AF RET

To type these programs in all you have to do is enter into assembler (ASSEM 10 $\langle RET \rangle$ $\langle RET \rangle$). With both programs it is probably best to use the CLS command to clear the screen before the routine and use the PAUSE command to enable you to see whats happened.

It is the second program that requires some explaining as it contains several interesting points which will go someway to help with the understanding of the machine and Z80 assembler.

The first line contains the address of the first location on the screen (7168 Dec or 1000 Hex). You may or may not know that the screen is memory mapped, that is each screen location corresponds to a memory location, if the manual had a block diagram of the VRAM you could see what I mean, but i'm afraid it does not, so this makes an explanation impossible at this stage. Anyway, onto the routine called VSET, this sets the VDP into write mode and sets the address for the write. The Truth Table below shows the two possible modes:—

Bit 6 ; 7

VDP address's are 14 bits long leaving the two most significant bits (above) for the mode setting. It should be noted that the VDP register loaded with the 'write' start address is an auto incrementing register so enabling sequential data transfers. The bits 6 & 7 are set to their correct values by the lines OR 64 & AND 127, these are two logical operators and they perform the following tasks. Two Truth Tables and a demo will hopefully clarify things somewhat:-

```
0 \text{ AND } 0 = 0   0 \text{ OR } 0 = 0
```

0 AND 1 = 0 0 OR 1 = 1 TRUTH TABLES FOR LOGICAL OPS

As a demo i'll use the numbers from the program:-

Accumulator 00011100 = 1C Hex

OR 64 01000000 = 64 Dec

Accumulator 01011100

AND 127 01111111 = 127 Dec

01011100

You can see that bits 6 & 7 (two left hand bits) are now set as required.

VOUT only performs a bit output the the VRAM address set by VSET.

The IX register is used as a counter to output 960 (24*40) "*" characters to the screen. I hope that this is fast enough for you!!!!.

^{1 ;} O Write data to VRAM

O ; O Read data from VRAM

ASSEMBLER PROGRAM

```
This is Richard Dennis's second Assembler program, it shows
                                                            just
what can be done with this machine. There are two points
                                                            that
this program brings to bear:-
```

How Memotech have made provision in their Basic for the addition of extra commands.

```
2. How a well written assembler program should look.
ÿ
; PANEL LPRINT DUMP
ÿ
                        ; JUMP CODE FOR PANEL EXTENSION
          LD A, £C3
          LD (£FA9E),A
```

; ADDRESS FOR PANEL EXTENSION LD HL, PANEL

LD (£FA9F), HL; SET FEXPAND PANEL: CP £50 ; IS KEY 'P'

; IF SO THEN CONTINUE RET NZ

LD A, 14 ;SCREEN LINES

PUSH AF

;START OF NAME TABLE IN VRAM LD HL,£1COO SKIP TO NEXT SCREEN LINE LD DE,40

; SET UP ADDRESS FOR VRAM READ START: CALL LADDR

:PRINT OUT ONE LINE CALL DUMP POP AF

DEC A *KEEP LINE COUNTDOWN ; HAS IT FINISHED CP O

RET Z FINISH ROUTINE AFTER 14 LINES

PUSH AF

; ADDRESS OF NEXT SCREEN LINE ADD HL, DE

; DO UNTIL FINISHED JR START ; SET UP VRAM ADDRESS LD A,L OUT (2),A ;L.S. BYTE FIRST

; NOW SET M.S. BYTE LD A, H

OUT (2),A

CALL WAIT ; TIMING PAUSE FOR VDP

RET

LADDR:

DUMP: LD B, 29 SET SCREEN WIDTH FOR DUMP : READ SCREEN CHARACTER LOOP2: IN A, (1)

CALL WAIT ; PAUSE

; LOAD PRINTER BUFFER CALL BUFFER GET NEXT CHARACTER DJNZ LOOP2

:LPRINT ONE LINE OF THE SCREEN CALL LPRINT

RET

OUT (4),A :LATCH CHAR. INTO PRINTER BUFFER BUFFER:

; IS PTR READY

IN A, (4) STATUS:

AND £1 ; READY BIT CHECK

JR NZ, STATUS

CALL WAIT

; PAUSE FOR PRINTER

IN A, (0)

;STROBE DATA INTO PRINTER BUFFER

; PAUSE CALL WAIT

IN $A_r(4)$; RESET STROBE SIGNAL

RET

LPRINT: LD A, 10 ; LINE FEED

; SEND TO PRINTER CALL BUFFER

Cont'd Overleaf

LD A,13

; CARRIAGE RETURN

CALL BUFFER ; SEND

RET WAIT: PUSH BC

; PAUSE FOR A PERIOD

LD B,50

OF TIME TO ALLOW

LOOF1: DJNZ LOOP1 ; THE PRINTER AND THE

POP BC RET

; VRAM TO RESPOND

Anyone who has spent time roaming around their memory via the PANEL command, will find this program of much use, what this program actually does is allows the disassembled code to be printed out. It does this by using the system variable FEXPAND. A point to note is that this program is designed for use with the DMX 80, other printers may or may not require a different bit check in the STATUS routine (See your own manual for details). This program is actually executed (after typing run to reset FEXPAND system variables) by entering panel, using the list command to disassemble some area in ram then just press the 'P' key (make sure your printer is switched on!!) and you get an instant hard copy.

Many thanks for the programs

INTERFACING

As you probably know there is a user port inside the machine but a suitable connector (as described in Aug. Electronics & Computing) is unobtainable. We have solved this problem with our own connector design. This connector, which is simple to fit, brings the port's outside the machine for use by way of a standard IDC socket. The price of this connector is £4.50 incl. (with fitting instructions).

To support this connector we intend to produce a series of simple circuits for you to build. The first of which is a programmable L.E.D Display.

We are able to supply a full set of parts required for the project including all building instructions, circuit diagrams and software listings for the complete beginner at a cost of £6.95 fully inclusive.

If you order both items at the same time then please deduct 50p from the price of the cable.

Please make cheques payable to M.O.C..

YOUR LETTERS

Firstly, John Hodgsons information concerning the use of SPRITE command from RST 10:-

To use the SPRITE command you will need some extra information. The locations XP and YP are, in fact, two byte locations and the number is held in normal, not Z80, form. The full command is:-

SPRITE N,P,HIGHXP,LOWXP,HIGHYP,LOWYP,XS,YS,COL

**** Thanks to John, we hope this cures any problems ****

Programming Query from Gerald Buzzacott.

Could anyone please explain how to avoid adjacent colours on graphics screen becoming distorted where the colours change Instead of straight lines, the colour boundaries become stepped. The following routine demonstrates the problem.

100 VS 4:CLS

120 COLOUR 3,8

130 ANGLE 0

160 FOR N=0 TO 300

170 IF N=120 THEN COLOUR 3,11

175 IF N=240 THEN COLOUR 3,13

180 PLOT 127,95

200 DRAW 80

220 PHI .01 240 NEXT N

999 GOTO 999

A Pascal Problem from Paul Stratton of Barrow in Furness:-

I have a problem with my comiler, when i try to use the compiler option \$F in the program to include source text from a tape file, the compiler finds the file and outputs "using Filnam" and halts at this point with the machine locking up. Has anyone else had similar problems?.

Hints & Tips: - Further to last months program for Decimal Foint Tabulation, Richard Dennis has sent this one in for rounding numbers to different numbers of decimal places:-

10 REM *****ROUNDING PROG*****

20 INPUT "ENTER NUMBER: "; N

30 INPUT "ENTER NO. OF DEC PLACES: "; DP

40 REM ***************

50 LET N1=(INT((N-INT(N))*10^DP+.5))/10^DP

60 LET ANSWER=INT(N)+N1

70 PRINT ANSWER

FOR SALE:- 1 Memotech 512 computer complete with 4 Memotech games, instruction book, head cleaner, demonstration tape, head demagnetiser and leads. All boxed as new and in excellent condition. Price...£170.00 cash. Mr R.A.MORLAND 12 Deneve Ave, Poole, Dorset. Phone Broadstone 604409

GAMES REVIEW

Title: - Obloids
Publisher: - Continental Software

Type:- Arcade Price:- 6.95

This programme is from Memotech's own software house, and is produced in machine code by A.Key who is also responsible for Mission Alphatron.

Obloids is a fast moving arcade game with it's ancestry in the Pac-man era, though with many original features. The game is played across nine separate screens, formed in a three by three matrix, to give a continuous playing area surrounded by a barbed wire fence. Each of the screens is divided up into a 7×5 matrix of cells which rotate individually to provide an ever changing maze of paths and dead ends.

The aim of the game is to locate a 'magic box' within one of the screens, to find a path through the maze, collect the box and deliver it to the edge of the playing area. As well as needing to be nimble footed to work through the maze it is also necessary to avoid a gang of three nasties whose ambition it is to scratch you slowly to death. These creatures can be destroyed by means of a 'magic ball' which is released and retrieved using the space bar, and acts like an electronic boomerang. Points are scored for each box delivered and for the destruction of the beasties. After a number (random) of boxes have been delivered the game progresses to the next level, with faster and more devious meanies.

As well as the space bar the game also uses the curser keys, or joystick, for movement, and the home key or fire button to allow you to turn a cell to change the maze pathways. There is some difficulty in controlling all of these at the same time unless you have a one handed joystick. (My children have solved this by team work, or by using their toes on the space bar!! which gives me some concern about the longevity of my keyboard!!).

This is quite an enjoyable game, which makes good use of the machines graphics, though the sound track is not terrribly inspiring. The action is smooth and fast, even at lower levels, and requires considerable dexterity and concentration. My resident panel rate this as one of the best games so far available and continue to play it quite frequently, though they have not yet passed level 4. (A word of warning to those using monochrome TV's — the beasties are invisible at level 3).

Ratings:- Playability = 4
Lasting interest = 3
Graphics = 4
Value for Money = 4

Many thanks to Ray Morrissey for this review

COMPETITION

Firstly thanks to everyone who found at least one of the FOUR deliberate mistakes in last months Editorial column. The winner of Star Command is Dave Wemyss of Strathkinness, Fife.

For this months competition i thought since it's christmas and everyone will have some time on their hands, I'll include a simple (but good) drawing board program that Mr R.A Morland sent in, as it stands it works satisfactorily but it could be modified in some small way(s) to make it better, anyone who sends in their updated version will be included in a draw for the new release Music Pad.

```
10 REM "DRAWING BOARD"
20 REM THIS VERSION OF DRAWING BOARD WAS DEVISED BY R A MORLAND
30 VS 4: COLOUR 2,4: CLS
40 LET C=0
50 CTLSPR 2,1
60 GENPAT 3,0,255,129,129,129,129,129,255
70 SPRITE 1,0,128,96,0,0,1
80 CTLSPR 1,1
90 ATTR 2,0
100 GOTO 120
110 ATTR 2,1
120 LET Y=ASC(INKEY$)-48
130 IF Y=9 THEN GOTO 90
140 IF Y=0 THEN GOTO 110
150 IF Y>8 OR Y<1 THEN GOTO 120
160 MVSPR 9,1,Y
165 PAUSE 250
170 CSR 28,0: PRINT Y
180 LET C=C+1
190 CSR 2,0: PRINT C
200 LET K$=INKEY$: IF INKEY$="" THEN GOTO 200
210 IF K$="X" THEN GOTO 500
220 IF K$="R" THEN GOTO 400
230 GOTO 120
400 RUN
500 CSR 2,0: PRINT"
                        ":REM (4 SPACES)
510 LET C=0
520 GOTO 120
```

Notes about the Drawing Board.

This program sets up a sprite which can be moved in one of 8 different directions as drawn below, it also displays 2 sets of numbers. The left hand box counts the number of pixels drawn whilst the right hand box simply shows the direction being used.

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