

## SOFTWARE FROM BETASOFT

### GAMES MASTER FOR THE SAM COUPE:

At last YOU can create stunning games and demos for the Coupe, with fast, smooth, animated sprites, complex sound effects, missiles, platforms, lifts, detailed backgrounds etc. No programming expertise required! Most of a game's design is specified by the menu-driven editor, which lets you edit graphics, animation, movement, sprite collision actions, sound effects, masking, control keys etc. A simple but very fast compiled language controls some features. A complex demo with animated bouncing sprites passing over and under each other, in front of a background, can be written with just a few commands to start the sprites off. (Once started, the sprites can act by themselves.) The editor produces stand-alone ROM-independent CODE programs that are free from any copyright restrictions - so you can sell your masterpiece! Impressive demonstration programs and an extensive sprite library are included to get you started. Backgrounds and sprites can also be grabbed from any Mode 4 screen and edited.

SIX SPRITE PLANES PLUS BACKGROUND  
BIG SPRITES - UP TO A THIRD OF THE SCREEN AREA  
TRUE COLLISION DETECTION ON SPRITE EDGE

SMOOTH, FAST PIXEL MOVEMENT OVER 100 ON-SCREEN SPRITES  
POWERFUL EASY TO USE EDITOR COMPILED CONTROL LANGUAGE  
COMPLEX MOVEMENT PATTERNS AND ANIMATION SEQUENCES  
STEREO SPRITE-FOLLOWING SOUND EFFECTS

Written by Dr Andy Wright, author of the Sam ROM, MASTERDOS and MASTERBASIC, the program works with 256K or 512K RAM and ROM 2.0 and above. A comprehensive manual is included.

GAMES MASTER COSTS JUST £24.99 INCLUSIVE OF POSTAGE AND PACKING (ADD £1 IF OUTSIDE EUROPE). SPECIAL PRICE TO INDUG MEMBERS: £22.50 (QUOTE MEMBERSHIP NUMBER)

**NEW !!** Secrets of the SAM ROM revealed! The complete ROM 3 source listing on disk, extensively commented by the programmer, Andy Wright. Addresses and memory contents are included to make comparison with the actual ROM easy. The viewing program lets you move lightning-fast through the listing with various step sizes, perform searches, or list any part to a printer or (with MasterDOS) a disk file. A must for the serious SAM user! Just £9.95.

**FILE MANAGER** - The flexible file program. Files up to 780K. Requires MasterDOS and MasterBasic v1.7 or later (updates are free if you return your original disk. Enclose an SAE if you're not buying anything.) £12.99

**MasterDOS** - The DOS for the serious user. Faster, easier to use and more reliable than SAMDOS. Now available EXCLUSIVELY from BETASOFT. Offers RAMdisk and clock/calendar support, subdirectories, BACKUP, serial and random access files, multi-sector READ and WRITE AT, and much more! £15.99.

**MasterBASIC** - The much-praised SAM Basic extension adds many new commands for graphics, sound, printing, data-handling, improving DOS, searching and editing programs, etc. £15.99.

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Prices include P & P. Make cheques and postal orders payable to:  
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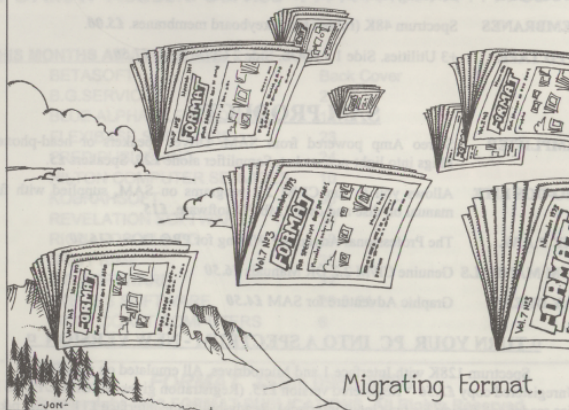
Vol.7 Nº3.

November 1993.

# FORMAT

FOR SPECTRUM AND SAM USERS

Miracles of nature, no. 208



Migrating Format.

**FORMAT - Just The Thing  
To Cheer You Up This Winter**

£1.25 (UK R.R.P.)

ISSN 0963-8598.

## B.G.SERVICES

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Spectrum 128K with Interface 1 and Microdrives. All emulated on your PC. Unregistered copy **£2.50** Registered version **£15.** (Registration gives DISCIPLE/PLUS D disc reader and design for tape input interface). Ready-built tape interface £11.50 incl p&p.

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BGS-L7

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# NEWS ON 4

## TWOUP FOR SAM

West Coast Computers have launched a new two-way adaptor for the SAM Coupé called the **TWOUP**. It is designed to allow you to plug two interfaces into SAM's expansion connector at the same time - in many ways a smaller version of the SAM Card-Cage/SAMBUS but without the clock facility.

The **TWOUP** will sell for £24.95 plus the normal postage and packing but as a special launch offer **FORMAT** readers can order one for just £19.95 provided their order is postmarked before the 1st December.

## PRO-DOS LITE

B.G.Services are launching a new version of their Pro-Dos operating system for the SAM Coupé. It is exactly the same as the original package except there is no smart plastic box and no manual (that is supplied as a file on disc so you can read it on screen or print it to disc). The other difference? The price, down to £15 from the £28 charged for the original.

Pro-Dos Lite is fully CP/M 2.2 compatible and comes with over 1Mb of free software bundled with it. It is mainly aimed at the serious user as it has no graphics capabilities built in.

## TEST YOUR ROAD KNOWLEDGE

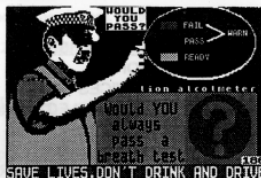
Flexibase Software have gained the consent of The Controller, H.M.S.O. no less for their latest releases.

New, multiple choice self tests based on Roadcraft - the Police Drivers' Manual (as used by the Institute of Advanced Motorists and the RoSPA Advanced

Drivers Association for their advanced driving tests) and the Cycling section of the Highway Code.

The tests will run on the Spectrum (with tape, DISCIPLE/PLUS D or +3 disc) Sam computers or PC Computers (3½" or 5¼" disc) and the operator needs no computer skills to use the programs.

The tests contain digitised pictures, sound, and large text are used throughout the programs so that whole groups can share in the learning experience.



The tests each cost £6 for the Spectrum and Sam computers or £9.75 for the PC version (which is supplied with a shareware version of Gerton Lunter's excellent Spectrum Emulator).

## DRIVER OUT

Driver, the new WIMP system for SAM landed on our desk a few days ago. Although a full review will have to wait for the December issue the first reaction is WOW!!!

Although you don't have to have a mouse to use Driver, you really do need Driver to use a mouse - it is a program everyone will have a use for.

**URGENT** we need your news. Anything you think other people should know about. Each item printed earns the contributor 3 months extra subscription (please claim when next renewing).

# The Editor Speaks

Much better month this one, no illness, no problems - I'm getting worried - what's round the corner?

Last month, as you will all have found out, I did manage to get the normal size issue out despite the germs battering my body. I just forgot to remove the bit about it being a small issue from the editorial - just goes to prove I don't even read it myself.

Anyway, down to business this month. The Gloucester Spectrum & Sam Users Gathering, on the 13th November, is just days away now - UK members will find a leaflet enclosed giving a map of how to get there by road (if you are coming by train or coach then give me a ring and I will give you directions).

The venue is just off the M5, about four miles from the centre of Gloucester. But there is a reasonable bus service so if you want to bring along anyone not interested in computers then you can pack them off into Gloucester for some early Christmas shopping.

It is not too late to order advanced tickets if you send off straight away. Enclose a SAE and your cheque. Tickets cost £1.50 each or £4 for a family ticket (2 adults and up to 4 under 16s). They will cost you £2 & £5 on the day. Advanced sales already guarantee that this will be the largest gathering of Spectrum and Sam enthusiasts under one roof in many years.

There will be several demonstrations going on through the day and lots of interesting discussion groups forming. If you have anything you could demo to people then please give me a ring and we will see what we can do. It promises to be a day not to be missed by any true

Spectrum/Sam enthusiast.

Now to something completely different - the last issue of *Your Sinclair* - did it ever appear in your area? Lots of people have contacted me saying they were unable to get the last issue because their local newsagents never received copies. Were you in the same situation? If so drop us a line please so we can try and find some pattern to their distribution problem. Even here, in Gloucester, we never saw a single copy at the local W.H.Smiths despite visiting every other day for a month. Distribution of YS had been bad for some time before, but this last issue seems to have been available in very few parts of the country. Your information will be gratefully received.

This month's issue sees the start of a series aimed at readers who want to learn Basic programming. It has to start, for obvious reasons, at the very beginning - right from square one. I know from your phone calls that there are a lot of readers who will welcome this course and who have been looking for just this sort of article for a very long time. Your feedback, good or bad, will help to shape the future of the series so let us know how you feel about it please.

Most of the problems with the change over to the new DTP system have now been resolved - only the hardware course is still awaiting conversion. Adrian has promised the next article will be ready for next month's issue.

Next month is of course the Christmas issue - and as always I am still looking for seasonal items to fill it - come on, dig deep and find something for me please.

Until next month.

Bob Brenchley, Editor.



# WEST COAST COMPUTERS

Abernant Centre For Enterprise, Rhyd-y-fro, Pontardawe, West Glamorgan, SA8 4TY.

Below you will find details of the full range of SAM hardware now available direct from us.

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W1002	SAM - 512K - Dual Disc Drives Fitted	£274.95
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W1101	SAM Internal Disc Drive Unit.	£79.95
W1102	Parallel Printer Interface. (SPI)	£24.95
W1103	RS232/Parallel Interface (COMMS).	£34.95
W1104	1 MegaByte External Memory Pack. (Needs MasterDOS to run from Basic).	£79.95
W1106	SAM Mouse System. Interface, mouse and software.	£39.95
W1107	External Disc Drive Interface (Includes Parallel Printer Port).	£34.95
W1108	Internal 256K Upgrade (for older SAMs with only 256K of memory)	£29.95
W1109	<b>*NEW*</b> <i>THOPE</i> allows two interfaces to be connected at same time. <b>*NEW*</b> <b>SPECIAL LAUNCH PRICE (Saves £5 until 1st Dec 1993)</b>	£19.95
W1201	SAM Power Supply.	£24.95
W1301	SAM Parallel Printer Cable (BBC type)	£9.95
W1302	SAM to TV/Monitor Scart Cable	£9.95
W1303	MIDI Cable Set	£6.95

E & O.E.

**UK Postage & Packing:** Add £10 for computers (sent by insured carrier).  
All other items add £1 per item (max £5).

**Overseas customers:** Please write for quote on Airmail Insured Delivery Service.

Write your order clearly on a reasonable sized piece of paper, state your name; address and phone number. Cheques, Postal Orders, Euro-cheques, should be made payable to West Coast Computers. We will try to dispatch your orders as quickly as we can - however please allow 28 days to be on the safe side. Some items have to be produced in batches and where this may cause a longer delay we will write to you as quickly as possible.

## RAM SHORTAGE

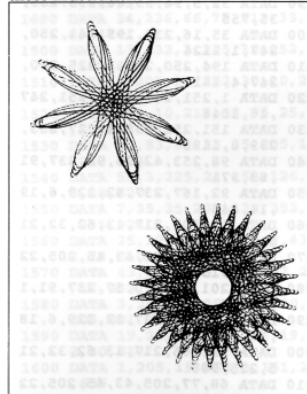
Given the current shortage of RAM chips we may only be able to hold the current prices on SAMs, 256K upgrades and 1meg memory packs for short time. Any order received by 1st December will be accepted at the above prices - thereafter please see our next advert.

# SHORT SPOT

YOUR HINTS, TIPS AND PROGRAMMING IDEAS

Edited By:- John Wase.

Like the seasonal firework, we'll start November with a whizz from Roy Burford of Stourbridge. Well, actually it's a bit of a challenge. You remember recently we featured "The Rose" program? Roy suggests the following values of n and d respectively to produce good rose-like patterns: 27,13; 55,13; 106,158. So; where's the challenge? Well, Roy writes a little PS to say he's not really happy at all with the results of the revised Spirograph program in September's **FORMAT**. His middle daughter produced lots of Spirograph pictures some years ago, and a bit of diligent hunting in the game box revealed a piece of paper from which these illustrations are taken.



Roy writes that the program calculations somehow do not look right to him as a rationale to produce such drawings, though he agrees that there could well also be a cumulative error problem. OK; first problem of the month. Could you write a program that will really produce nice pictures like these? After all, his daughter was quite little when these were done. Surely our **FORMAT** readers... I know they haven't a Spirograph kit, but with SAM or Specie, all things should be possible...

Thanks Roy.

The next item's from Chris Laird of Mayfield, East Sussex, Who writes that he sent a Really Useful Utility Ages and Ages ago, but it couldn't be printed because it was originally from *Your Sinclair* (there, that dates it, doesn't it). They don't exist any more, so here's the program. Bob will kill me, for it's rather too long for a Short Spot, but I just couldn't resist it for it does so many useful things. It's a little piece of machine code, and it's so long because Chris has sent in a piece of Basic with a code Poker, lots and lots of REMs, telling you what's happening, and the rather long string of DATA statements. Here's what the options do:-

- 1) *Length*: Shows length of Basic Program.
- 2) *Memory*: Shows amount of free memory.
- 3) *Ramtop*: Shows address of RAMtop.
- 4) *RENUMBER*: Renumbers Basic,



```

adjusting GOTO, GOSUB and
RESTORE statements.
5) Delete REMs: Deletes all REM
statements to free more space.
6) COMPACT: Removes unnecessary
spaces and control codes.
7) VARIABLES: Lists the variables in
memory.
Here is the program:-
10 CLEAR 63999
20 LET start=64000: LET leng=9
62
30 LET col=8: LET lineno=1000
40 FOR r=0 TO INT (leng/col)-(
1 AND INT(leng/col)=leng/co
1)
50 LET checksum=0
60 FOR i=0 TO col-1
70 READ byte
80 POKE start+ r*col +i,byte
90 LET checksum=checksum+byte
100 NEXT i
110 READ check
120 IF check<>checksum THEN PRI
NT "Error in line ";lineno:
STOP
130 LET lineno=lineno+10
140 NEXT r
150 STOP
160
500 REM To Save Program do :
510 REM SAVE "TOOLKIT" CODE 640
00,962
540 REM To reload do :
550 REM CLEAR 63999
560 REM LOAD "TOOLKIT" CODE
590 REM RANDOMIZE USR 64000
600
630 REM To change the RENUMBER
start line to x do :
640 REM POKE 64958,x-(256*INT(
x/256))
650 REM POKE 64959,INT(x/256)
670 REM To change the RENUMBER
increment to y do :
680 REM POKE 64960,y-(256*INT(
y/256))
690 REM POKE 64961,INT(y/256)
700
990 REM Toolkit data
1000 DATA 205,107,13,195,127,250
,22,1,920
1010 DATA 6,84,79,79,76,75,73,84
,556
1020 DATA 58,32,67,46,74,79,89,6

```

```

7,512
1030 DATA 69,32,39,56,57,22,3,6,
284
1040 DATA 80,82,69,83,83,58,22,5
,482
1050 DATA 5,49,32,76,69,78,71,84
,464
1060 DATA 72,22,6,5,50,32,77,69,
333
1070 DATA 77,79,82,89,22,7,5,51,
412
1080 DATA 32,82,65,77,84,79,80,2
2,521
1090 DATA 8,5,52,32,82,69,78,85,
411
1100 DATA 77,66,69,82,22,9,5,53,
383
1110 DATA 32,68,69,76,69,84,69,3
2,499
1120 DATA 82,69,77,39,83,22,10,5
,387
1130 DATA 54,32,67,79,77,80,65,6
7,521
1140 DATA 84,22,11,5,55,32,86,65
,360
1150 DATA 82,73,65,66,76,69,83,6
2,576
1160 DATA 2,205,1,22,1,121,0,17,
369
1170 DATA 6,250,205,60,32,6,7,33
,599
1180 DATA 166,250,126,219,254,35
,166,35,1251
1190 DATA 32,5,94,35,86,235,233,
35,755
1200 DATA 35,16,239,195,141,250,
247,1,1124
1210 DATA 194,250,247,2,225,250,
247,4,1419
1220 DATA 1,251,247,8,25,251,247
,16,1046
1230 DATA 151,252,239,16,27,253,
239,8,1185
1240 DATA 98,253,42,75,92,237,91
,83,971
1250 DATA 92,167,237,82,229,6,19
,14,846
1260 DATA 19,205,217,13,62,32,21
5,225,988
1270 DATA 68,77,205,43,45,205,22
7,45,915
1280 DATA 201,33,0,0,57,237,91,1
01,720
1290 DATA 92,167,237,82,229,6,18
,14,845
1300 DATA 19,205,217,13,62,32,21
5,225,988
1310 DATA 68,77,205,43,45,205,22
7,45,915

```

```

1320 DATA 201,42,178,92,229,6,17
,14,779
1330 DATA 19,205,217,13,62,32,21
5,225,988
1340 DATA 68,77,205,43,45,205,22
7,45,915
1350 DATA 201,42,190,253,124,181
,200,42,1233
1360 DATA 192,253,124,181,200,42
,83,92,1167
1370 DATA 237,91,190,253,205,139
,229,48,1415
1380 DATA 22,70,114,35,78,115,35
,113,582
1390 DATA 35,112,35,229,42,192,2
53,25,923
1400 DATA 235,225,205,128,252,24
,229,42,1340
1410 DATA 83,92,35,35,35,35,205,
42,562
1420 DATA 252,210,247,251,84,93,
6,0,1143
1430 DATA 4,35,126,254,46,32,3,2
35,735
1440 DATA 24,236,254,14,32,242,3
5,35,872
1450 DATA 35,35,35,35,126,254,58
,40,618
1460 DATA 4,254,13,32,234,120,25
4,4,915
1470 DATA 40,16,48,227,213,98,10
7,245,994
1480 DATA 62,48,205,136,15,241,6
0,209,976
1490 DATA 24,236,66,75,213,33,0,
0,647
1500 DATA 17,232,3,205,33,252,17
,100,859
1510 DATA 0,205,33,252,30,10,205
,33,768
1520 DATA 252,10,214,48,95,25,68
,77,789
1530 DATA 42,83,92,35,35,205,139
,252,883
1540 DATA 56,3,225,24,153,126,18
5,48,820
1550 DATA 7,35,35,205,128,252,24
,235,921
1560 DATA 35,126,184,56,245,43,4
3,78,810
1570 DATA 43,102,105,193,197,229
,17,232,1118
1580 DATA 3,205,19,252,17,100,0,
205,801
1590 DATA 19,252,30,10,205,19,25
2,30,817
1600 DATA 1,205,19,252,3,151,2,3
,636
1610 DATA 2,3,225,125,2,3,124,2,

```

```

486
1620 DATA 3,151,2,225,195,78,251
,42,947
1630 DATA 83,92,35,35,205,139,25
2,208,1049
1640 DATA 84,93,35,35,205,128,25
2,229,1061
1650 DATA 55,237,82,43,235,115,3
5,114,916
1660 DATA 225,24,231,62,48,167,2
37,82,1076
1670 DATA 56,3,60,24,248,25,2,3,
421
1680 DATA 201,10,3,214,47,61,200
,25,761
1690 DATA 24,251,126,205,139,252
,208,254,1459
1700 DATA 234,32,13,35,126,254,1
3,32,739
1710 DATA 250,35,35,35,35,35,24,
234,683
1720 DATA 254,34,32,9,35,126,254
,34,778
1730 DATA 32,250,35,24,221,254,1
3,40,869
1740 DATA 232,205,182,24,40,212,
254,237,1386
1750 DATA 40,27,254,236,40,23,25
4,247,1121
1760 DATA 40,19,254,240,40,15,25
4,229,1091
1770 DATA 40,11,254,225,40,7,254
,202,1033
1780 DATA 40,3,35,24,181,35,126,
254,698
1790 DATA 48,56,175,254,58,48,17
1,201,1011
1800 DATA 126,205,182,24,40,251,
254,13,1095
1810 DATA 35,32,245,229,213,237,
91,75,1157
1820 DATA 92,167,237,82,209,225,
201,42,1255 1830 DATA 83,92
,24,31,229,35,35,78,607
1840 DATA 35,70,35,126,254,33,56
,250,859
1850 DATA 254,234,32,26,3,3,3,3,
558
1860 DATA 225,197,205,24,16,193,
11,120,991
1870 DATA 177,32,246,237,91,75,9
2,167,1117
1880 DATA 237,82,208,25,24,214,3
5,126,951
1890 DATA 254,13,32,8,225,9,35,3
5,611
1900 DATA 35,35,24,231,254,14,32
,7,632
1910 DATA 35,35,35,35,35,24,231,

```



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3 Suffolk Drive

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254,684  
1920 DATA 33,56,227,254,34,32,8,35,679  
1930 DATA 126,254,34,32,250,24,215,254,1189  
1940 DATA 58,32,211,84,93,35,126,254,893  
1950 DATA 13,40,209,254,33,56,24,6,254,1105  
1960 DATA 234,32,236,98,107,197,205,24,1133  
1970 DATA 16,193,11,126,254,13,32,245,890  
1980 DATA 225,35,35,113,35,112,43,43,641  
1990 DATA 43,24,160,42,83,92,35,35,514  
2000 DATA 237,91,75,92,167,237,82,208,1189  
2010 DATA 25,229,78,35,70,35,126,254,852  
2020 DATA 13,32,8,225,113,35,112,9,547  
2030 DATA 35,24,227,254,14,32,7,35,628  
2040 DATA 35,35,35,35,24,231,254,34,683  
2050 DATA 32,12,35,126,254,34,40,221,754  
2060 DATA 254,13,40,223,24,244,254,33,1085  
2070 DATA 48,211,197,205,24,16,193,11,905  
2080 DATA 24,204,253,203,2,134,42,75,937  
2090 DATA 92,62,13,215,62,32,215,126,817  
2100 DATA 254,128,200,203,127,40,60,203,1215  
2110 DATA 119,40,29,203,111,40,9,214,765  
2120 DATA 128,17,19,0,215,25,24,225,653  
2130 DATA 214,96,215,62,36,215,62,40,940  
2140 DATA 215,62,41,35,94,35,24,236,742  
2150 DATA 203,111,40,19,214,64,215,35,901  
2160 DATA 126,203,127,32,3,215,24,247,977  
2170 DATA 214,128,17,6,0,24,213,214,816  
2180 DATA 32,24,218,203,111,32,243,198,1061  
2190 DATA 32,215,62,36,24,213,10,0,592  
2200 DATA 10,0,0,0,0,0,0,0,10

Great stuff, Chris. [Yes, well done Chris. But will readers PLEASE remember that this is **SHORT SPOT** - long programs like this would be better off on their own. Just send them on disc to the **FORMAT** office with a brief write-up. Then I will not have to shout at John for including them here. Ed.]

Now we come to the Grand Solution for some of my problems, kindly provided by Mr L.G.Baumann of Cowies Hill, South Africa. Problems? Well, this short program converts reasonable lengths of machine code to DATA lines. I had another offering of this type, but prefer Mr Baumann's. This is because the alternative itself contained a piece of code which the author had not translated: I wasn't sure how the program would get on at translating itself, and really hadn't the time to mess about to see. Overall, it seemed more complicated, too. This program takes 15 seconds per 100 bytes on an ordinary Spectrum, and avoids errors.

First load your Code file you want translating, using a suitable CLEAR address to protect it. Then load the Datalines program. Ensure that one dummy Data line is provided for each 100 bytes (or part) to be transferred. Note that each DATA line must contain 404 x's. Run the program. Then bring each DATA line in turn into the editing area, and then return it unaltered. This removes unwanted spaces and allows the computer to insert the invisible bytes needed to interpret numbers. Remove the six program lines and give the DATA lines suitable numbers ready to merge into the new program.

Here it is: now type it in.

```
1 DATA xx[404 x characters]xx
100 CLS : LET tot=0: LET ct=0:
    LET q= PEEK 23635+256*PEEK
    23636+5: LET w=q: REM data
```

```

lines L.G.Baumann
110 PRINT "First address of code? "; INPUT fst: PRINT fst
: PRINT "No of Bytes? "; INPUT byt: PRINT byt
120 FOR f=fst TO (fst+byt-1): LET tot=tot+1: PRINT AT 7,0
: "Bytes transferred so far"; tot
130 LET num=PEEK f: FOR h=1 TO LEN STR$ num: POKE q, CODE (STR$ num)(h): LET q=q+1: NEXT h
140 POKE q, 44: LET q=q+1: LET ct=ct+1: IF ct=100 THEN POKE q-1, 13: LET ct=0: LET w=w+4
10: LET q=w: 150 NEXT f: PRINT "Finished": IF NOT ct=0 THEN POKE q-1, 13: STOP

```

Simple, innit! Our grateful thanks.

Next, we have a load of bits and pieces which are SAM related.

Carol Brooksbank (bless her) again writes: this time about *Style Writer*. In this program, the 'Image Viewer' shows your graphics in the colours in which they will print. However, the CTRL/V option from within the main program which lets you view graphics held in memory shows anything coloured with palettes 5 or 14 as pale blue, when in fact they will print as orange. You can correct this in the following way:-

Load *Style Writer* as normal. Use CTRL/B to exit to Basic. Edit line 6690, adding the following commands to those already in the line:-

```
PALETTE 5,46: PALETTE 13,46
```

Now enter CLEAR as a direct command:-

```
SAVE OVER "sw" LINE 10: HIDE "sw"
```

Don't forget to reset SAM and reload *Style Writer* after all this, if you want to use it straightaway - because the CLEAR will have lost vital variables.

Now to Ton Voon of Shepherd's Bush, London. He has a number of pieces of

information, but one in particular caught my eye. This is about *The Secretary*. Occasionally some letters disappear if you're a fast typist or you reach the end of a line. This is because the keyreading routine is right, but in the wrong order. Ton has found that if you hold down ESCape and then pressing RETURN, you can exit to Basic, and this tip was also sent in by Lee Willis. Back to Ton, however, who next warns that if you use RUN to get back to *The Secretary*, you'll reset all the variables, and it won't work: instead use the command RESUME.

In Basic, alter line 110 to:-

```

110 DO: LET a=PEEK 23560: LOOP
UNTIL a: POKE 23560,0: POKE
23611,223: BAND PEEK 2361
1: IF a<32 THEN GOTO 200

```

Now SAVE "Secretary" LINE 10. This should give you a better typing response, although the program will still have to catch up sometimes.

Ton also has some other tips. For instance, there's a bit of explanation on using REF in procedures (analogous to a procedure's VAR declaration in Pascal).

Normally, if you have a routine which starts:- DEF PROC write x and then call it with write 15 then all the instances of the variable x in the procedure will take on the value of 15. However, if the procedure is:-

```

DEF PROC reset REF x
LET x=0
END PROC

```

Then you can only call it with a variable as your parameter, e.g. RESET num. The end result will mean that num=0, because every instance of x in the procedure will be treated as if x were the variable num. This is quite useful in passing your parameter out of a procedure.

As examples, the following procedures reverse numbers or strings:-

```

DEF PROC reverse a, REF c, b
DEFAULT b=0
IF a DIV 1=0 THEN LET c=b:
EXIT PROC
reverse a DIV 10, c, b*10+a MOD
10
END PROC
DEF PROC reverstr a$, REF c$, b$
DEFAULT b$=""
IF a$="" THEN LET c$=b$:
EXIT PROC
reverstr a$(2 TO), c$, a$(1)+b$
END PROC
And finally.
DEF PROC reverstr2 a$, REF b$
LOCAL f
LET b$=""
FOR f=LEN a$ TO 1 STEP -1
LET b$=b$a$(f)
NEXT f
END PROC

```

If you do not use MasterBasic, then replace EXIT PROC with a GOTO statement that jumps to the END PROC. Reverse and reverstr are recursive procedures and reverstr2 is a normal FOR loop which is about 3 times faster than reverstr.

Wow! Many thanks, Ton.

Do you remember 'Fizzle'? The result of Alan Cox's program was to add a little block at a time to a row of type until the message crystallized, as it were, on-screen. Ettrick Thomson comments that it must have taken Alan a long time to have worked out the data for his string (qq\$), so he, (Ettrick) decided to get the computer to do it. This is how 'Fizzle2' started.

The SAM program (sorry there's so much SAMstuff this month, folks, but that's what's been sent in) works as follows. Any 10-character message (which may include block graphics or UDGs) is printed (invisibly) at Line 20. The screen is then scanned, and

POINT(x,y) picks out the inked pixels: for each of them a 4-character string is added to Ettrick's q\$ (Alan's qq\$). The first two columns give the row (while the last two give the column) for the corresponding giant pixel of the displayed message. Lines 90-150 do the same job in much the same way as Alan's lines 50-85. At Line 130, Ettrick has used CHR\$ 143 instead of entering the block graphic from the keyboard, since you can't print it in *FORMAT*: the block graphic of Alan's version (his Line 70) just disappeared in print, leaving an empty string, and hence an empty display. Ooh 'eck!

Anyway, here's Ettrick's version. Hope you like it.

```

5 REM FIZZLE2;Ettrick Thomson
n
10 MODE 4
20 PRINT PEN 8;"SHORT-SPOT"
30 LET q$=""
40 FOR y=166 TO 173: PRINT ""
:
50 LET y$=(STR$(281-y))(2 TO
)
60 FOR x=0 TO 79
70 IF POINT(x,y) THEN LET q$=
q$+y$+(STR$(100+x))(2 TO
)
80 NEXT x: NEXT y
90 MODE 3: CSIZE 6,8: RANDOMIZE
ZE
100 FOR n=LEN q$ DIV 4-1 TO 0
STEP -1
110 LET c=1+4*RND(n)
120 PRINT AT VAL q$(c TO c+1),
VAL q$(c+2 TO c+3);CHR$ 14
3
130 PAUSE 15
140 LET q$(c TO )=q$(c+4 TO )
150 NEXT n

```

Well, that's all for now, folks. It's the beginning of October, and torrential rain is falling, with much of the country flooded. Before you read this, I shall be doing the Christmas issue. So I guess I'm too late to ask for Christmassy items, though if you've one up your sleeve,



already programmed, you could whack it on a disc and send it to me, post haste. And if you've any other shorties, do send them along, too: particularly original Spectrum pieces: we seem to have run short of these again. One final word. I've a load of bits and pieces I can't use. Things like programs which do nothing, discs with elaborate readme screens, but almost impossible to get-at programs, and letters in crabbed mediaeval script which I can't read on-screen. Worse still are the super demos which load up SCREEN\$ or DATA() arrays, for there's no real way of getting these into **FORMAT**. If you want it published, do make sure, first, that it's short, sweet, decent and publishable, and that you can print all of its instructions on a piece of paper which anyone (even me) can follow, and that it works! Then send it by express camel to me:-

**John Wase,  
Green Leys Cottage,  
Bishampton,  
Pershore,  
Worcs,  
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See you next month.



*'Mummy won't let Daddy come out to play until he's done his homework'*

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# BASICally Speaking...

By:- David Finch.

In response to many requests from readers the editor has asked me to write a few articles on Basic for beginners. The difficulty was knowing where to start - what level of knowledge to assume - have people even read the manual that came with their computer?

Well, the only place to start is right at the beginning - assume nothing - then I can't go wrong.

My apologies then to those who already know what I am going to talk about in this first instalment - keep reading there is more to come.

The computer that you have in front of you is very obedient. If you tell it to jump off a cliff, it will. The problem is, it is very stupid as well. You would have to tell it exactly how to jump of a cliff (and even then it couldn't because it doesn't have legs to walk or jump with). It has other qualities though. It has a wonderfully accurate memory and it is brilliant at maths.

It knows a language though. If it knew English then programming would be easy, because you would just tell it exactly what you wanted it to do in English, and it would do it. The problem is that the language is not English (and not French either), but **BASIC**. You have to learn to write in Basic to be able to tell the computer what to do. There are of course other languages that the computer understands, but Basic is by far the easiest to learn and your

computer automatically understands it because it is built into the ROM.

Basic is easy to learn because the words are very close to English. For example LET, STOP, GOTO. But you can't type GOTO THE SHOPS and expect it to get you a loaf of bread. These commands are very specific and you have to use them in the correct way, which is all part of learning the language.

Now, Please read the paragraph that applies to your computer:-

**48k Spectrum users read this:**

Press ENTER to pass the copyright message.

To enter commands you have to press the key with the command written on it. For example PRINT is written on P (about the top left of the keyboard). Press P and PRINT will be written on the bottom of the screen. Experience tells you which keys to press, you just need to get used to it. You enter numbers by pressing the appropriate number key and when you need letters, you press the letter key. The computer knows when you need letters or commands. (So, for example, it knows if you want P or PRINT).

If you make a mistake and you need to DELETE the previous letter or command. You do this by pressing the DELETE button on the 48k+, or CAPS SHIFT and ZERO (0) at the same time on the 48k version. (If there isn't a plus (+) sign after the name on the computers case then you just have a 48k).

#### 128k Spectrum users read this:

Select 128k BASIC (or +3 BASIC on the +2A or +3 models) by pressing the up and down cursor (arrow) keys, then pressing ENTER when the blue bar is on it. Now just type in the commands by typing it like you would on a typewriter. If you make a mistake then press the delete button which will delete the letter behind the cursor (flashing blue white square).

#### SAM users read this:

Press RETURN to pass the copyright message. Type the commands by typing it like you would on a typewriter. If you make a mistake then press the delete button which will delete the letter behind the cursor (white square with a small black square in it).

#### Everyone read this:

So let's learn out first word, or command. Everyone has their first thrill with a computer. For some people it is getting it to make a sound or show a colour. For you it will be writing your name. There is a specific word for writing things on the screen, it is PRINT. Just like this magazine is printed, the word is PRINTed on the screen. You can't say PRINT MY NAME because it is very stupid and doesn't know your name. So we have to say PRINT DAVID or PRINT JOE BLOGGS. But even that isn't good enough. The computer is very fussy and you have to tell it in the correct way. It doesn't know whether DAVID is a command or what you want it to print, so you have to put it in quote marks, like speech in a novel.

```
PRINT "DAVID"
```

This will work so type it in (with your own name, that was my first thrill). If you've finished typing it and nothing has happened, that's because you haven't

told the computer that you have finished instructing it yet. Press the RETURN key (called ENTER on Spectrums) which means that you have finished typing that line of commands.

WOW! You have your name on the screen. Not long to go now until you will be programming the latest hit game! At least you know how to print your name at the start so people will know that you've programmed it.

This isn't very useful if you have a lot of information that you want to print on the screen. You want to put it in a program of commands, in other words a list of commands that the computer does one after another. You could print one thing after another. You tell the computer which to do first by putting a number before it. So it does command 1 first, then 2. You don't have to have each and every command one number higher than the previous, so you could have command 3 then command 5 then command 10. It will do the commands in that order even without numbers inbetween. We could program the computer to print your name and address.

```
10 PRINT "JOE BLOGGS"
20 PRINT "1 THE HIGH STREET"
30 PRINT "FALSE TOWN"
40 PRINT "FALSELY"
50 PRINT "(0111) 123456"
```

Type this in with your details. Remember to press RETURN or ENTER at the end of each line. The computer doesn't do each command after you type it because it is part of a program (it has line numbers). You may wonder why I the numbers are going up in tens. It doesn't matter what they go up in. They could go up in twos, threes, elevens. We don't go up in ones because if you want to put a new command in the middle of

line three and four, for example, you can't have line three and a half. If you wanted it between thirty and forty, you could have line thirty five, or thirty anything. We didn't put a postcode in the above example, and we all know that an address isn't complete without its postcode. We need to put it between forty and fifty, so type:-

```
45 PRINT "FA1 1AA"
```

With the correct postcode, of course.

You may want to know how to get this program to work, since it is no use if you can't. You want it to "run" through each command, doing them as it goes. This is your second Basic word that you have learnt, RUN. You don't put a line number before it because you want the computer to do it now and not as part of the program. So type RUN then press RETURN or ENTER. (From now on I will assume you will press RETURN or ENTER after every line of commands or command). You should see your details on the screen now.

This is not very useful though. For a start, you know your name and address, but more importantly, it's a bit pointless to program in your name and address every time you want to look it up. It won't stay in the computer for ever. I know I said it had a brilliant memory, but after you unplug it the only thing that it can remember is its language (Basic) and other things that make it work properly. In other words, every time you switch off or press the reset button, it will forget the program. You will probably have looked at the tapes (or discs if you have a disc drive. Non disc drive owners, don't worry about what a disc drive is). Others may have some other complicated programs. You don't have to program these every time you want to use them

because someone else has taken the time to do this and stored them on the discs or tapes. If you could store your program on a tape then every time you wanted to look up the address you could play the program back. We use the command SAVE to store the program away onto the tape (or disc). If you have a disc drive then just save on tape for now. Hopefully you have a cassette recorder set up (if not, see your manual for the details) and a blank cassette (just like the music ones). We have to give the program a name so that we can identify the program, so we will call this program ADDRESS. As I said, we use the SAVE command and we have to give it a name. We do it like this:-

```
SAVE "ADDRESS"
```

Again, the quote marks separate the text from the commands. You could put any name inside the quote marks (but you are only allowed ten characters or "letters" in a program name). Remember, we don't give it a line number because we want the computer to do it now. Press enter or return and you should get a message like

```
PRESS RECORD AND PLAY THEN ANY KEY.
or
```

```
START TAPE AND PRESS ANY KEY.
```

Or something like that.

Connect the lead to the MIC connection(s) (see manual if unsure). When you have your cassette in the cassette recorder, press record and play and wait a few seconds, then press any key on the keyboard (except BREAK). You should hear some funny sounds and the screen's border should have striped colours on it. When the sounds stop you should get a message like OK 0,1. That means all is fine.

You want to check that it has saved

properly so type:-

VERIFY "ADDRESS"

(Or whatever filename you used, but it must be exactly the same as what you typed before).

Rewind the tape and play the sounds back again, with the connections in EAR or PHONES (see manual if you are unsure). If you get the "OK message" again then everything is good. If you get anything else (such as "LOADING ERROR") then I recommend the you phone the **FORMAT** helpline, since it could be one of many problems.

To get the program back again after you have pressed reset (not on Spectrum 48k's) or switched the computer off, you LOAD it back into the computer with:-

LOAD "ADDRESS"

Type this in and play it back, just like when you VERIFIED it, and you should get the program back.

I don't recommend that you do this with all the names and addresses of all your friends and relatives because it would be a big waste of time. You will be able to do such a program far more easily, if you want, after a few months.

Things should start to speed up now that you are used to the Basic editor (the way you type programs in) and saving. We should be able to get through lots of new commands now.

Next month we will look at simple strings - no, I'm not going to be talking about knots, but ways of storing information.

Until next time....

# The HELP PAGE

Edited By:- Kevin Gould.

I wish to first thank Nev Young for responding to the "file not found" Tasword problem - works a treat.

David North writes from Somerset saying that he has purchased a reconditioned Amstrad CTM664 monitor but is unable to connect it to his SAM as he does not know the pin configuration of the DIN plug on the monitor. Looking at the 6-pin DIN socket the pin configuration is as follows:-



- 1 = RED
- 2 = GREEN
- 3 = BLUE
- 4 = SYNC
- 5 = GROUND
- 6 = LUM

Now we come to two letters dealing with graphic dumps. The first concerns the problem Basil Lankester is having getting a Cannon BJ-10EX printer to work with FLASH! and SAMPRINT, and he wonders whether he needs to put the appropriate graphics ESC codes into the BASIC program. Unfortunately, in the case of FLASH!, there are no printer commands in the BASIC part of the program as the printer is controlled entirely from the machine code program FLASH1. The printer control values are at address 83282 to address 83253 and there are two graphics commands. The first for selecting plotter graphics giving 70 dots/inch, this starts at 83241 and consists of codes 27,42,5,0,1. The second is to select double density graphics

giving 120 dots/inch, this starts at 83249 and consists of codes 27,42,1,64,2. Both of these codes are standard Epson/IBM formats so, as your printer supports Epson drivers, I would have expected the Cannon codes to be the same. However, there are often slight variations to these codes so you should check your printer manual and, if necessary, poke in the codes shown in your handbook. If the Cannon codes are the same as those shown above, the other thing to check is the DIP switch settings. On my printer I have to have the auto line-feed switched on to print graphics.

I am not familiar with SAMPRINT so I am unable to help you with this, other than to suggest you examine the BASIC program (if it has one) to see if you can find the codes shown above. They will appear in the format LPRINT CHR\$ 27; " "; CHR\$ 5; CHR\$ 0; CHR\$ 1. If necessary, Change these to the codes shown in the handbook.

The second letter reaches us from Berlin, where Ingo Weseneck would like to know how to obtain correctly proportioned screen dumps from FLASH!. Well Ingo, I'm not sure what a correctly proportioned dump is, as the relative aspect ratios of screen and dump will vary with the combination of monitor and printer being used. However, I know what you mean, circles should be circular and squares be square! Unfortunately you have only limited control over this, as it depends

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## STEVES SOFTWARE

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upon the range of dots per inch the printer's graphic commands offer. I suggest you experiment by changing the graphics mode being used by poking the different mode values given in the printer manual into addresses 83243 and 83251 (see the answer to the previous question). The range of values allowed should be from 0 to 6. To do this on-line, you can break into FLASH! by selecting the FILE menu and CAT, then press the break button, POKE the new value and then enter GOTO 1040 to return to CAT.

Ingo has a colour printer and would like to be able to make coloured dumps producing more than the 7 standard printer colours. He says that the FLASH! colour dump isn't producing anything and asks what the colour dump program that **FORMAT** sells has to offer. Although the FLASH handbook indicates that colour dumps can be made, only monochrome dumps are possible. The **FORMAT** software is Epson compatible and will produce 16 colours will small variations possible according to the palette settings.

P Basheer has written with a +D and 3.5" disc problem. His problem is when he is setting up his +SYS file and the disc format question is asked, there is disc activity but the program halted, entered BASIC with a "CHECK DISK IN DRIVE" report.

It does not matter whether there is a disc in the drive or not. On the subject of Datel answering: you are certainly not the first, nor probably the last to complain about Datel's After Sales Service. I am still waiting for a reply from a year ago which was faxed...

Back to your problem, I have also had this report several times and for no apparent reason. I just turn everything off and switch back on again and the

same disc works fine. My first drive gave me problems by switching off during some disc operations, the matter was resolved by Datel but not before involving the Trading Standards people - I don't know the equivalent in Abu Dhabi, if there is one. It turned out to be something with the transformer.

As to a sensor problem, that is beyond me. One thing that has just occurred is that you must, to be able to have used CAT d1 booted up O.K with your BetaDOS disc. I can draw two conclusions: a problem with your system tape or the drive itself is faulty. If you send me a copy of your tape, which I presume is G+DOS 2a for ROM 1a then I will try it on mine. I have the same computers as you.

Perhaps other readers can comment.

A different disc drive problem from Roy Burford. He wants to use Nev Young's disc cleaning program (Vol 3 N° 3) but INPUT or INKEY\$ the drive number. The answers seems to be to do a CAT d number with the drive you want to clean. Then use the cleaning program as this uses the last drive used.

W.V.Holden of Weston Turnville, Bucks, has numerous OMNICALC and MASTERFILE files he compiled on the Spectrum. Having recently acquired a 512K SAM he would now like use make use of the two programs on SAM but so far he has had no success. From the wording of your letter it is not clear whether you have been trying to run them under an emulator on SAM, and if so which emulator you are using. I have no knowledge of how well these two programs work with an emulator but I am aware that several of the Spectrum utilities do require modification to run correctly. The main areas that seem to give trouble are the print routines, which

should be configured to work with Stream 3 and the PLUS D commands POKE @6,0 and 6,1 might need changing. Also the SAVE and LOAD and CAT routines can give problems if they are not included in the BASIC part of a program.

If you cannot get these two utilities to work with an emulator then I wouldn't recommend trying to convert them to work on SAM unless you are very experienced with writing machine code and have a lot of spare time! I refer you to the reply to Ern Warwick's letter last month, highlighting some of the problems involved.

Lastly, On the +2 (grey case) I have a problem in that every key works apart from SYMBOL SHIFT A which in TW2 is used to call the main menu. In last months Short Spot, Miles Kinloch reported he used two capacitors across each diode. Perhaps Miles can drop me (Kevin) a diagram of what he has done with exactly what capacitors he has used.

Well, that's it from me. I would just like publicly to thank both my colleagues for their help and assistance on the Help Page.

As usual send your problems/answers to the following addresses:-

#### Anything SAM:-

Ray Bray (Format Help Page),  
'Elmsleigh',  
4, Tidworth Road,  
Porton,  
Salisbury,  
Wiltshire, SP4 0NG.

#### Anything +3, CP/M:-

Mike Atkins (Format Help Page),  
70, Rudgwick Drive,  
Bury,  
Lancashire, BL8 1YE.

Anything Spectrum (48K/128K/+2):-  
Kevin Gould (Format Help Page),  
2, Barleyfield Close,  
Heighington,  
Lincolnshire, LN4 1TX.

This is my last Help Page as Editor, one of the reasons is I have recently started a new job and simply don't have the time to compile the page, however, Ray Bray is taking over as Editor. My contribution will be only Spectrum (not +3 as that's Mike's) with a bit of printer thrown in.

I wish Ray every success in his new job.

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## MACHINE CODE WITHOUT THE TEARS

### Part 22.

This month we come to the subroutine which draws a whole character.

```
CHR_DR  LD A, (Y)
        PUSH AF
        LD A, 8
        LD (COUNT), A
```

We begin by fetching the y co-ordinate and preserving it, and setting up a counter for the 8 bytes in a character.

```
LD HL, (CHRADD)
NX_BYT
PUSH HL
LD A, (HL)
LD (VALBYT), A
CALL BYT_DR
LD A, (COUNT)
DEC A
JR Z, CHR_EX
```

The address of the pattern bytes of the character we are drawing is fetched from the variables, and we enter a simple loop. The character pattern address is preserved, and we fetch the first pattern byte and store it in the variables. BYT\_DR is called to draw the rescaled byte, and the counter decremented and checked. If no more bytes are left we jump forward to exit.

```
LD (COUNT), A
LD A, (HT)
LD B, A
LD A, (Y)
SUB B
LD (Y), A
POP HL
INC HL
JR NX_BYT
```

If there are more bytes to do we store the counter again, lower the y co-ordinate by the height factor

By:- Carol Brooksbank.

(remember y co-ordinates run from 0 at the bottom of the screen to 175 at the top). We then fetch the character byte address from the stack, point HL to the next byte, and loop back to draw it.

```
CHR_EX
POP HL
POP AF
LD (Y), A
RET
```

When all the bytes have been drawn, we POP HL to balance the stack, because the character pattern address is still there. POP AF retrieves the starting Y co-ordinate and puts it back in the variables, because the next character drawn on screen should be level with this one.

```
ERR_SCR EI
CALL SCREENOUT ;Sam only
RST 8
DEFB 4 ; (Sam DEFB 32)
```

This short subroutine is a very important one, which introduces you to something new - using the computer's own error messages.

You will remember that I explained that the interrupts are disabled while the program is running, and that it would be disastrous to return to Basic in that condition. So we can't allow messages like "Scroll?" or "Integer out of range" to happen automatically, because they cause a return to Basic. We shall have our own checking routine which will determine when we are running out of screen space, and jump to here when this happens. We shall use the normal



"Out of screen" (Spectrum) or "Off screen" (Sam) messages.

We begin by setting things up for the exit to Basic, enabling the interrupts and paging out the Sam screen.

RST 8 is the instruction to print an error message and exit to Basic. It must be followed by the message number minus 1 for the Spectrum, or the message number for Sam. If you check your computer handbook you will see that the relevant message is 5 on the Spectrum and 32 on Sam.

```
INVALCM DEFB 22,21,7
        DEFM "INVALID CHARACTER"
INVALC LD A,2
        CALL SETSTR
        LD B,20
        LD HL,INVALCM
        LD A,(HL)
        RST 16
        INC HL
        DJNZ CLOOP
        EI
        CALL SCREENOUT ;Sam only
        RST 8
        DEFB 20 ; (Sam DEFB 14)
```

This is another message printing routine. The program only handles ASCII characters, DELETE and the arrow keys, with SS/A (STOP) recognised as the signal to exit the program. Any other keypresses will cause a jump to INVALC, when the message "INVALID CHARACTER" will be printed AT 21,7, and the program will exit via the error message "BREAK into program" - message 21 on the Spectrum and 14 on Sam. On the Spectrum, error messages after 9 have letters rather than numbers. This one is L, but it is the 21st message.

```
STO_CH LD A,(CODE_ST)
        LD L,A
        LD H,0
        ADD HL,HL
        ADD HL,HL
        LD C,L
```

```
LD B,H
LD HL,(CHARS)
XOR A
ADC HL,BC
LD (CHRADD),HL
RET
```

The character patterns of an ASCII character are found by adding 8 \* the character's code to the address held in the system variable CHARS. We store the code collected from a keypress in our own variable CODE\_ST. This subroutine fetches the code and puts it in HL. Adding HL to itself 3 times multiplies its contents by 8. This value is transferred to BC, and the address held in CHARS is fetched. XOR A makes sure the carry flag is reset so that it will not corrupt the sum, and code\*8 is added to the address in CHARS. HL now points to the first byte of the character's pattern in the font table, so it is stored in the program variable CHRADD.

```
H_8 LD A,(HT)
     ADD A,A
     ADD A,A
     ADD A,A
     RET
```

This is a very simple little subroutine which returns the full height of a rescaled character in A. The height factor is fetched, and A added to itself 3 times to multiply its contents by 8.

```
W_8 CALL STK_W
     LD A,8
     LD B,A (Sam only)
     CALL STKBYT
     RST 40
     DEFB MULTIP
     DEFB ENDCAL
     RET
```

A similar subroutine finds the full width of an altered character, and leaves it as the last value on the FPC stack. The FPC is used because the width factor may not be an integer and is held in memory as a string.

```
RM_CHK CALL W_8
        CALL FP_BC
        LD A,(X)
        LD L,A
        LD H,0
        XOR A
        ADC HL,BC
        LD BC,255
        XOR A
        SBC HL,BC
        JR NC,NO_RM
```

This is the start of the subroutine which checks whether there is room for another character on screen. If there is room across the screen from the present x co-ordinate and down the screen from the present y co-ordinate the subroutine will return with no carry. If either check fails it will return with carry. First, the width of a full character is added to the present x co-ordinate. 255 is deducted from the answer. If the last byte of an altered character will be on screen, this sum will give carry, so if there is no carry we jump forward to the exit point for "no room".

```
CALL H_8
LD B,A
XOR A
LD A,(Y)
SUB B
JR C,NO_RM
AND A
RET
```

If the x co-ordinate passed the test, we check y. The height of a finished character is deducted from Y. This time, carry would mean there is not room and we jump forward. If there is no carry then AND A resets the carry flag and we exit with no carry signifying that the present co-ordinates are suitable.

```
NO_RM SCF
      RET
```

If a co-ordinate failed the test a jump is made to here. The carry flag is set and we exit with carry, signifying that the co-ordinates will not do.

```
NEWLIN XOR A
        LD (X),A
        CALL H_8
        LD B,A
        LD A,(Y)
        SUB B
        LD (Y),A
        RET
```

This little subroutine moves down on screen to start another line of characters. The x co-ordinate is set to 0, the left of the screen. The height of a complete character is deducted from the present y co-ordinate and the result is stored as the new y co-ordinate.

```
NEW_X CALL W_8
       CALL FP_A
       LD B,A
       LD A,(X)
       ADD A,B
       LD (X),A
       RET
```

The corresponding subroutine moves the x co-ordinate across the screen by the width of a rescaled character - ready to draw another. The width of a character is added to the present x co-ordinate and the answer stored as the new one. W\_8 leaves the characters width as the top value on the FPC stack, and FP\_A retrieves it, compressed to the nearest integer, in A. Thereafter the routine is just a simple do-a-sum-and-store-the-answer.

```
KEY LD A,(FLAGS)
     BIT 5,A
     JR Z,KEY
     LD A,(LASTK)
     PUSH AF
     LD A,(FLAGS)
     RES 5,A
     LD (FLAGS),A
     POP AF
     LD (CODE_ST),A
     RET
```

This is the keyboard reading routine you have met before, but in this program all we do with the code read from the keypress is put it in the CODE\_ST

variable. This routine will be called from Basic, and Basic will check whether the keypress was STOP. If not, it will call the character drawing routine which will make all the other checks of the keypress - after all, why bother to call machine code if all you need to do is STOP?

```

DRAWIT CALL SCREENIN (Sam only)
DRAWIT DI (Sam users delete the label)

```

This is the start of the main spine of the rescaling program. First (after Sam users page the screen in) we disable the interrupts.

```

CALL RM_CHK
JR NC,CHAR

```

We call RM\_CHK to check the present x,y co-ordinates and jump forward if there is room for the character.

```

CALL NEWLIN
CALL RM_CHK
JR NC,CHAR
JP ERR_SCR

```

If it was only the x co-ordinate which failed the test, moving to a new line may make it OK. (If the y co-ordinate failed, it will fail again). If the new co-ordinates are suitable we jump forward to print the character. If not, we exit via the "Out of screen" message.

```

CHAR LD A,(CODE_ST)
CP 8
JP Z,LEFT
CP 9
JP Z,RIGHT
CP 10
JP Z,DOWN
CP 11
JP Z,UP
CP 12
JP Z,DEL

```

If we have room to print a character we start checking the code. If one of the arrow keys, or the delete key, was pressed, we jump forward to the appropriate routine.

```

CP 128
JP NC,INVALC
AND A
CP 32
JP C,INVALC

```

It wasn't arrow or delete, so now we check whether it is a valid ASCII character. Anything outside the range 32-127 will cause a jump to the routine which exits to BASIC with the report "INVALID CHARACTER" and "BREAK into program".

```

CALL STO_CH
MOD9 CALL CHR_DR

```

We have a printable character, so STO\_CH stores the address of its pattern bytes in CHRADD, and CHR\_DR draws it on screen. MOD9 is another modification point. When we want to write upside down characters, the routine called will poke the address of the upside-down drawing routine here instead of CHR\_DR.

```

CALL NEW_X
RT
CALL SCREENOUT ;Sam only
RET

```

The x co-ordinate is moved across ready for the next character, the interrupts enabled, the Sam screen paged out, and we return to Basic.

This main spine of the program looks so simple, but it calls an amazing number of subroutines - all the ones we have written so far except KEY, and some we still have to write. But because we have adopted the "building bricks" approach we don't have to keep track of the fact that when CHR\_DR is called we shall often be operating several subroutines deep.

We will leave it there for today. We only have the mirror writing, upside down writing, arrow and delete key routines and the Basic to write now, so the end is in sight - at last!



# YOUR LETTERS

Dear Editor,

Thank you for a speedy reply and also a very good magazine. I ordered a copy of *DOOMDARKS REVENGE* (received), I am after a copy of *LORDS OF MIDNIGHT* the first part of the trilogy. I wonder if you have a copy or could tell me where I could obtain one. Also was the third part ever issued of *THE EYE OF THE MOON*, as I can find no reference to it in any of my magazines. I have a Spectrum 2A.

Yours Sincerely, D.E.Alexander.

Sorry, the only games are those we put on the irregular special offer leaflet. Can anyone out there offer any help? Ed.

Dear Editor,

Having bought a second-hand Spectrum about three years ago to use for inexpensive Video Titling via programs like 'Protitler' from Bill Hall and Camcorder Titles from Mr J.White of London I recently got a SAM 256k and the programs come over on SAM better because of the wider screen.

Now to the point, I think I read in Your Sinclair some time ago that someone was working on producing a 'Genlock' for the SAM. Could you tell me if anybody has done this yet?

Yours Sincerely, B.P.Beer.

The is a Digitiser on its way some time and I think this may contain a genlock but I'm not sure. More news as we get it from West Coast. Ed.

Dear Editor,

I sent Wop Gamma to Revelation on the 17th August 1993, because in Fred issue No.36 they advised me that if level 80 (password HAUNCH) doesn't work to return the faulty game to them.

Since then I haven't received a new copy of the game, and have written a letter to them, which they have ignored.

Could you please help me in this matter.

Yours Sincerely, A.Thomson.

As it so happens, yes I can. We do the disc duplication for Revelation so your disc ended up here. The reason it has never been returned to you is because you forgot to send an SAE with it.

By the way, FRED were wrong, there never was a fault - just different sets of passwords. Still, send the Stamped Addressed Envelope and we will send back your disc with a version of Wop Gamma that matches the passwords printed in FRED (although I do think that it is cheating to use them).

I would also like to take the opportunity to remind other readers that if you are writing to companies, or returning things to them, you really should include an SAE if you expect a reply.

Dear Editor,

I am very pleased to be able to renew my subscription for another 12 months and to continue the support for an

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# Revelation Software

REVA01-11

excellent magazine. I must say that the 'new look' **FORMAT** (Vol 7 No 1) is very good indeed and in particular the clarity of the program listings  
Congratulations!

I possess copies of **FORMAT** since Issue No 4, 1987, and recently when I was hospitalized (fractured ankle) for a two weeks spell, I had my wife bring all of my neatly bundled copies to the hospital and I thus spent many hours of contentment reading through the back numbers and making appropriate notes as I read through them all. Rest assured that boredom did not arise during my stay there. **FORMAT** seems to improve month by month, which must give much pleasure to you, your colleagues and contributors alike.

I now have to bring to your notice my sad experience in trying to purchase a SAM Coupe 512K from West Coast Computers by taking advantage of their 'Trade In Offer' as outlined in the June issue of **FORMAT**. I am rather perplexed and of course very disappointed with West Coast, that after over two months I have not had any kind of reply.

I am so surprised that despite the obvious need for West Coast Computers to obtain and keep as much custom as possible for the sale of the SAM that there appears to be something wrong with their SALES set up. It is incomprehensible that in the current issue of **FORMAT** they advertise again and pointing out the 'fantastic success' of their 'Trade In Offer' it will be extended to the end of September.

I cannot understand this when they appear not to have yet achieved their first objective let alone the second one.

I do know from your various items written in **FORMAT** over several years

you have extolled the virtue of the SAM and its distributors, and in recent months that of West Coast Computers and Blue Alpha.

I would be very interested to read your views in this and indeed if any other members who are similarly disappointed following all the hype.

**Yours Sincerely, Dick Grimmer.**

The success of the Trade-In deal did take West Coast a little by surprise, that is why they extended it. The demand, coupled with the acute shortage of memory chips (see last months issue) has led to delays. Blue Alpha have been doing a valiant job as the assembly/dispatch team but, as I think you will appreciate, when people are under pressure the last thing they are able to do is reply to letters. If you gave them a ring they would have been able to tell you straight away the situation regarding your order.

Everyone is doing their best at the moment, as the SAM market expands I have no doubt that more people will be taken on so that letters can be answered more often. However, for the moment, we just all try to pull together to keep SAM alive - and growing. **Ed.**

**Dear Editor,**

A daft question - aren't they all? I've used a disc head cleaner since advocated by you in my first copy of **FORMAT**. I CAT the disc to clean heads and get **FORMAT LOST** report. Has it cleaned it?

**Yours Sincerely, Leslie Pollard.**

No, not quite Les. CAT will only clean the heads on side one of some drives. The best way is to say **FORMAT Dn**, this will move the heads over a very large part of the cleaning disc (for a much longer



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As used by Format Publications to transfer articles/programs for this mag.

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period as well) and then stop with the FORMAT LOST message when it tries to verify the disc is formatted. Ed.

Dear Editor,

Firstly may I congratulate you on a marvellous magazine. I was especially impressed with the excellent service provided by your helpline. The young lady who took my call on the two occasions I rang is a great asset to your company. Amstrad could do with a few hundred like her.

Now to the real purpose of this letter. As with most Spectrum users I have a small circle of like enthusiasts I correspond with at more or less frequent intervals. One of those contacts, a Mr Joe Daniels, 15, Coronation Road, Stoney Stratford, Milton Keynes, MK11 1JJ, has been a Sinclair fanatic ever since the heady days of the ZX81. Unfortunately, he was recently diagnosed as suffering from terminal cancer. He has now reached the stage of needing daily radiation treatment. For a man in his seventies this is a great burden to bear.

He is now too ill to use his Spectrum, but does enjoy a good read. I wondered if you could mention him in **FORMAT** with the request that any member who was able could send him their best wishes, and possibly enclose any computer related reading matter that they could spare. I know that both Joe and his devoted wife Mavis would greatly appreciate this. We Spectrum folk have always been some of the keenest, kindest and most helpful of all computer users, so I am sure he would get a good response.

Yours Sincerely, J.J.Blizard.

Jenny has now papered her walls with copies of your letter and is constantly threatening to leave me for Amstrad

unless I tidy up my office. Oh well, if they can talk about cloning 65 million year old dinosaurs I could have a go at cloning a few Jenny Bundocks - or does that go against international conventions on arms limitations (she's gonna hit me when she sees this).

I'm please to print Joe's details, thank you for caring enough to write to us. I'm sure someone will write to him wont you readers...

Dear Editor,

I was re-reading some of the back issues of **FORMAT** and Fred recently, and one thing struck me - the variety of plans, hardware, and so on, for expanding the SAM to compete with the likes of the Amiga.

I can't help feeling that they've missed something. The SAM cannot be 'better than the Amiga'; more user-friendly and easier for beginners to use - YES.

However, that isn't what we should be asking ourselves. What we should be asking is, have we got more talent, as a whole, than the Amiga? And I, personally, think that the answer is yes. We have demo writers like Entropy, the Wombles; demo converters like Stefan Drissen; people writing brilliant tunes with the sound chip (no samples), like Andy Monk; people supplying masses of talent to the machine, stretching it further and further. Do you see plenty of things like that on the more 'successful' machines? I haven't, yet.

Most of the commercial programmers for the hit computers (excluding consoles - they aren't even real computers) seem content, for the most part, to rely on tried and tested methods, like sampling sounds instead of writing tunes, unlike everyone who bought E-Tracker; using the same variety of game formats. Okay,

so most originals have been used, but there are still some waiting to be discovered, or even re-discovered. For example, consider Lemmings, or Populous.

Admittedly, the SAM hasn't got quite the wide variety of software that can be found on, for example, the Amiga or IBM clone. But we're getting there. And if you like your computer, and it works well with you, and for you, does it matter what other, less informed people think?

Keep up the good work, everyone who has bought a SAM without you, the SAM world would not be quite what it is today.

By the way, **FORMAT** looks much better since you got the PC!

*Yours Sincerely, Paul Walker.*

Dear Editor,

Thank you for the PC=Z80 article. I'll be getting a copy of the emulator as soon as my PC is set up. The PC will be used to design and run a Play By Mail game.

In order to learn how to prepare a business plan for my new company. I went on a three day Enterprise Allowance Business Training Course, at my local Business Initiatives Centre. I discovered that a lot of the other hopeful start-ups thought that a computer could be useful. However, they either had PCs or wanted PCs. They weren't interested when I told them that they could get excellent business software on much cheaper machines. Perhaps West Coast computers could send flyers emphasizing the SAM's usefulness to small businesses, to Business Initiative Centres around the country.

Please list the feature articles that are found in back issues of **FORMAT**.

The October issue was full size, wasn't it? Either that, or the Post Office

inserted extra pages when they ripped the envelope open.

*Yours Sincerely, Baljit S.Chima.*

I still use Spectrums and SAMs for most business things I want to do - only graphic type work (**FORMAT** production for instance) is done on the PC. The thing I object to is the high price of PC software - the recent upgrade to AMI-PRO (the package I use to produce most of the issue) cost me £130 - and that was just an upgrade. With programs like DRIVER and CAMPION arriving for SAM it can hold its head up well for the small business - your point is well made.

When I first started to write last months Editorial I thought I would have to settle for a few less pages than usual - but come the end I did manage the normal 40 pages - sadly I missed one reference to the smaller issue and it got into print (and it still took me three reads of the text before I spotted it after your letter arrived). **Ed.**

Dear Editor,

As a Short Wave Listener I read Ron Deeks letter (Oct '93) with interest regarding the software he uses for the SAM. If there are any S.W.L. readers who use a Spectrum they may be interested to learn that a program called RAMS IV is available from J.&P. Electronics, Unit 45, Meadowhill Estate, Dixon St, Kidderminster, DY10...., which is a multi mode receiving program. This Spectrum program enables Morse, AMTOR, RTTY, and Slow Scan TV to be decoded by S.W.L's providing the receiver is equipped with a BFO (Beat frequency oscillator or SSB/CW compensator), has good frequency stability, and preferably has a slow tuning rate of better than 25K/Hz per turn. An A4 SAE with a 33p stamp to the

above company requesting their catalogue will be of interest to all S.W.Ls and Amateur Radio enthusiasts who will find programs for both receiving and if licensed also for transmitting. Programs for computers other than the Spectrum are also available.

However, be warned, some computers can generate noise which can be picked up by the receiver and may greatly degrade the incoming radio signal. This interference may be eliminated by using a good quality co-axial lead between the computer and the TV set and/or fitting a high pass filter where the lead leaves the computer. The computer board itself may also radiate unwanted frequencies and these can be reduced by suitably screening the computer in a metallic casing. Has your wife or mother any old cake tins?

Alternatively, if you don't mind 'time shifting' switch off the computer and TV, then tape record the reception and decode the tape later. Not an aesthetically acceptable procedure to the purist however.

A free publication titled "How to improve TV and radio reception", published by the DTI and available from all main Post Offices gives useful information on commercial filters available, while Books and Frequency Guides for S.W.L's are listed in the monthly 'Short Wave Magazine'.

Happy Decoding.

*Yours Sincerely, Bill Buxton.*

Thanks Bill. Lots for people to work on there. J&P have had a few mentions in the past in these pages. **Ed.**

Dear Editor,

You must think I'm an awful nuisance by now but you see it's like this....

I ordered *The Artist II* and *Money Manager* some time ago, well as expected, (although I mentioned that I only had a 40 track 5¼" drive) you sent 80 track.

I had by that time got the general hint to upgrade to 80 track so I went down to my friendly computer shop (they deal mainly in P.C's) and asked them to order me a 40/80 switchable drive (you gave me that advice in a phone conversation).

Anyway, days turned to weeks. It transpired that the firm had come that close to bankruptcy only to be bought out by a local Hi-Fi retailer. My disc drive was not being supplied as the wholesaler was dubious about being paid by the computer shop (until the buy-out was settled officially). Then came the bomb shell. My disc drive was a 1.2 Mb. "Would this work?" said the man at the shop. No it did not. "Sorry" he says, "But six months ago I could have got you one".

Today I phoned around a bit. I tried Blue Alpha Electronics who only do repairs. Nonetheless they said they had had one lonely drive sitting on a shelf two weeks ago which they had sold in reply to a similar inquiry such as mine.

So the message is (and I think you should pass it on to **FORMAT** readers) 80 track 5¼" are now very scarce, (if you do know a supplier, please let me know). I have a feeling 80 track 3½" could also become scarce soon although W.N. Richardson who advertises in **FORMAT** seems to have some at the moment.

So the point of this letter is I am sending back the 2 programs on 5¼" plus I am sending 2 x 3 1/2" discs plus £2 to help cover postage costs etc.,

Yes, if you remember you copied *Campion* from 3½" to 5¼", well this same friendly computer shop man suddenly said "Hey wait a minute, I've got a 3½"

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drive from a scrapped commodore, try it, it just might work". Ureka!! It did, not only that, but 80 track as well, so now my original copy of *Campion* works.

*Yours, Bernadette Dowsland.*

5¼" drives are still fairly standard on IBM type machines and I tried like mad to get MGT to make them standard on SAM - cos they are far more reliable than them there new fangled 3½" drives. 5¼" discs are also much cheaper as well as taking up less space - I have hundreds of them here so I speak from experience. However 40 track drives are very rare now and have never been popular on the DISCIPLE/PLUS D.

Still, you see a lot about at computer shows, and the last time I was in one of our local computer shops they had one or two in stock (bare drives for the IBM).

I think if you had asked for a disc drive for the BBC they may have understood more. Ed.

**Dear Ed,**

Hey man, the letters pages been getting kinda nasty lately.

We all need to mellow-out.  
Peace.

*Yours Sincerely, Andrew Gale.*

Yeh, well, you see, well, its....

OK, I'll come clean, there is nothing quite like a good debate (argument) and it does get people writing - even you Andrew.

In the meantime, where did I but those hippy beads man? Ed.

**Letters may be edited or shortened to fit on the pages.**

This is your letters page so it is up to you to fill it with interesting things. Come on, get writing, any subject even remotely related to computers. Just keep things as short as you can so we can get as many letters as possible in each month.

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# FORMAT

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