

CPC USER

The magazine for serious CPC & Plus users

MERRY
CHRISTMAS!



Issue 54...December 1995

United Amstrad User Group

Your ever-ready staff...

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(contact Brian to hire one of our excellent books)

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Editorial

**Merry
Christmas
To
You
All**



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First of all an apology for the two misplaced pages in October's magazine. This was not noticed until all the copies had been printed so it was too late to do anything about it. At first I thought that my contribution had been censored! Then I discovered it on the last page. News from Brian Watson that together with WACCI, he has bought the rights to all the PROTEXT software so this excellent suite of programs has been saved from extinction.

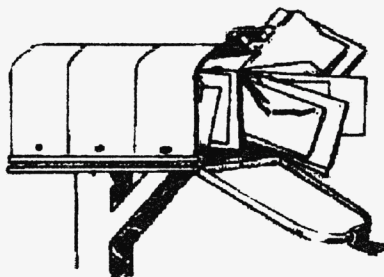
I believe the programs will be sold Campursoft but no doubt an announcement will be made when all the details have been finalised. In addition to this some of the software developers have expressed an interest in writing add-on programs. Even people who are currently using pirated copies of Arnor's versions will be catered for! There might be an amnesty period during which current users (regardless as to where they obtained their copies) may be allowed to register for a small fee with the new company and so become legitimate users as well as obtaining the latest version of the program and a manual. They would then be able to use the on-going support service. If you would like to be kept informed of the latest developments send an A4 SAE to Brian Watson at 8BIT Magazine, Harrowden, 39 High Street, Sutton-in-the-Isle, ELY, Cambs. CB6 2RA.

Next, news that our PD Tape Librarian, Richard Duggan, now has an e-mail address. He suggests that members here and abroad might like to send letters or articles for the magazine to him by e-mail and he will then pass them on to John. Richard's e-mail address is r.duggan@bbcnc.org.uk so use this method of communication if you wish. For those of you who, like myself, do not understand all this talk about e-mail, Internet etc., Richard is preparing a series of articles on the subject. I shall look forward to reading all about it in due course even though I do not have the hardware necessary to enter the so-called 'super highway'!

For those of you who use the RE-INK cans of black ink spray for revitalising your printer ribbons, news that Total Computing who manufacture the cans, has transferred the mail order section to Officeland, 10 Sterte Close, POOLE, Dorset. BH15 2AT. Phone:01202 666155 or Fax:01202 677958. They also sell a wide range of printer ribbons, stationery etc. so contact them for a copy of their catalogue in which they include details of User Groups.

Finally my usual wish at this time of year that you all enjoy a Happy Christmas and look forward to a Prosperous New Year. Best wishes, Tony Baker.

Mailbox



Robert Douglas writes:-

I recently had a letter from Arnor indicating that they are well and truly out of business. This is indeed sad and it presents me with a problem.

Over the past decade I have been using their PROTEXT programs. Three different versions as a matter of fact. It is with the PC version that I have a particular problem.

I want to change my printer from an Epson 24 pin to an Epson Stylus 800+ or the new 820 series, and I need a driver for both.

If there is anyone out there who could help, would you please contact me at...

30 Crud Y Castell, Denbigh, Clwyd, LL16 4PQ.

It is indeed sad Robert, but not as sad as you might think. Our ever friendly Brian Watson along with Campursoft have bought the rights to the 8 bit versions of Protext. Brian may also be able to help you with your PC problem. Look for the ad in this issue for '8BIT'...Ed



Bert Jones writes:-

With reference to Tony Baker's review of CP/M Printmaster.

He says that there is no documentation for the program. There is however an operating manual and graphics catalogue.

Whether it is still available and what it costs I do not know.

The details I have are as follows...

The manual is a 50 page A5 booklet, and is/was available from...

Steve Bonham, 71 Orwell Drive, Aylsbury, Bucks, HP21 9UE.

Thanks for the info Bert. I hope it proves useful to someone...Ed



We are always interested in reading your letters here at CPC USER.

If you have ANYTHING CPC related to write about, then why not write to us now.

You could even win yourself a prize from our prize list if your letter is chosen as 'Star Letter'.

Simply send your writings to the Executive Editor now.

8BIT

The magazine for ALL 8-Bit computer users.

Whether you have a CPC, a SAM, a C64, a PCW, a SPECTRUM or whatever...

If it has an 8-bit heart then 8BIT is for you. Only £1.25 per issue.

Brian Watson, Harrowden, 39 High St, Sutton, Ely, Cambs, CB6 2RA.

CICERO Part 5

By F.Babberly

What has gone before: A freelance journalist whose Internet pseudonym is Cicero is running a much-upgraded 8-bit computer through an illegal phone connection when it becomes apparent that some international 'net contacts are being targeted and traced, possibly for prosecution in their own countries.

Cicero is hired by Conor, a representative of a company with large international telecommunications interests. He tells Cicero that a group of very powerful and wealthy people are endeavouring to take over and control the Internet, which they see as a threat to their vision of a proper 'status quo.' Cicero's morning mail brings the first instructions from Conor.

Thursday 08.25

Chris was still in bed while I read Conor's letter. I still felt dreadful; cold turkey from the previous night's motorway coffee. A mug of Lyons' best chased the beast away for a while.

'We're going to raise some hell. Phone DK20's board this morning and leave a message that you're sorry you freaked the other night and that you've got something important to discuss. Say you'll be on-line tonight at 21.00 UK time.

'Next phone this number' (I recognised the code as being in Holland somewhere) 'and leave a message for Otto. Say you're really sorry and it won't happen again. Say you're planning a long break. Sign it Janos.

'Lastly, read the piece on page 2 of today's Guardian. I'll meet you later.' There was a wad of A4 behind the letter. It was the sort of verbiage you can pick up from any crazy corner of most boards; phone numbers for freakers, kite worshippers, anarchists (you

know -people who've forgotten what they want to overthrow), who cares? Unsurprisingly, there was no reply address or phone number.

I was distinctly unhappy at the prospect of making contact with DK20 again. Last time I had I'd got the clear idea that someone very heavy was sounding me out, probing for information, and Conor had said that the real DK20 had been replaced and the site was now a honey trap being run by 'the other side.' I would prefer not to mix with such unhealthy company. However, perhaps it was a test of my trust of Conor? ...Or my stupidity, I wondered as the system initiated.

One of the benefits of running an 8-bit system, and people knowing that you do, is that they don't have high expectations. I can receive or send slow-scan TV images through a much modified commercial VHS video camera, the lens of which looks at me from over my monitor. Incoming resolution is pretty poor, as is that of the Mabuchi portable TV on the shelf nearby which displays the image in colour, and the scan rate is such that subtleties of facial expression don't really come across, but apparently it works well enough in the other direction. Sometimes I pretend my signal is unreliable and switch off the outgoing line when I want some privacy. It's surprising what people get up to when they don't think you can see them.

The hard drive is one I bought fully cabled

"I also invested about ten pounds in scratchcards. Another waste of cardboard."

from Germany a few years back. Again, the phrase 'primitive but it works' sums it up. It is invaluable for dumping stuff while on-line, and I also use it as additional memory, fooling the processor into thinking it's accessing conventional RAM by a paging system I wrote. My last contact with

whoever was pretending to be DK20 had resulted in me wiping most of the hard disc as well as some damage to the cabling as I broke the contact the hard way.

Anyway, I did as instructed. Logging on to Detroit I left the message for DK20 and signed off. I guessed someone there watched it as it arrived. Next I left the message for Otto. Again there was no immediate response so I switched off and went to buy a Guardian. I found I kept looking around all the way there and back, though whether for Conor or someone else I couldn't say. I also invested about ten pounds in scratch cards. Another waste of cardboard.

By the time I got back, Chris was up and gone and I started singing 'Passing

**"...it was his 'net' activities
which resulted in his beating
and broken hands."**

Strangers' to myself as I put the kettle on. I could do Sarah Vaughn but my Billy Eckstein left a lot to be desired.

It occurred to me that I hadn't cleared my mailbox, so while my coffee mug gained another ring (it was dark brown on the outside and beginning to resemble a hollowed-out log on the lighter glaze inside; by the rings the mug was at least ten years old) I booted the system again.

Nothing much to read apart from a note from Jean J in Bury offering me an updated 'AA box' for Welwyn. This version she calls "Warranty Cover" because the security encoding has been increased so promising further protection. She's so indiscreet! I wipe the note immediately.

There were a couple of letters from around the world following up on my Wednesday night calls about the Creeper, or Crawler, or Sneaker who was stalking the 'net taking out sysops. Of course, by now I had a better idea from Conor of what was

going on than any of my contacts.

If there was one surprise posting it was from Minni, Isho's little sister. She was

**"...all the media have an
'underground' and uncensored
side."**

obviously using the rig under instruction from Isho and the message was mostly an apology from him for not getting back to me. He said he'd had a bad accident and quite openly blamed his 'friendly' local gangsters who'd got him pegged as the wrong guy for some messed-up drug deal. It didn't sound as if he had any idea that it was his 'net activities which had resulted in his beating and broken hands. He finished off the dictated note by asking if I've seen 'One-Eyed Jacks.' He's got a strange and sick sense of humour, that boy. I wondered whether Minni might be able to take a return message from me, but decided against it for a day or two.

Obedying the morning's orders, I placed the message to Otto from Janos. It seemed quite innocuous. Then I switched off again and opened the Guardian. It was a piece by a freelance journalist, Gerry Prescott, who I'd met briefly at a journalist study course a couple of years ago, and it was on the subject of Internet abuse.

The article suggested there was a lot of nonsense currently being published about pornography, witchcraft, child abuse, terrorism and similar horrors appearing on bulletin boards run by wacky sysops. It went on to point out that every communication medium has had its wild shoots develop on the fringe, and all the media have an 'underground' uncensored side, but this has never been seen as sufficient reason to scrap the whole medium. Some recent Internet coverage seemed to stop only a little short of calling for such a world-wide ban, or at the very least a proper system of control with punitive

measures promised for offenders. This Prescott guy then claimed the 'net was a great and good tool for democracy in the true sense, and could not (by its nature) be controlled. Fairly bland stuff, I thought, and poorly written - just jobbing journalese.

I bummed around for the rest of the day, completing a couple of assignments which were just a little over deadline and doing some more on the fantasy trilogy no-one wanted. I've really given up on it being anything other than therapy.

Thursday 18.00

No contact yet from Conor. The day's work done, but feeling the evening with DK20 could be 'interesting,' I put my feet up with a dessert spoon and a cereal bowl full of something by Vesta. The fifth item on the six o'clock news nearly made me choke. It concerned the murder of Janos Czeseru, lieutenant to a reputed drug distributor in Amsterdam.



SUPER-PROTEXT

Part 2

By Brian Watson

Part one of this pair of articles described the 6128+ which I use for personal, hobby and business record keeping and letter writing, as well as publishing and the various hardware accessories and other software used. The main program is the CP/M+ version of PROTEXT, which I will describe in further detail here, in the hope it will encourage other users to make the fullest use of their own computer and word processor program.

CP/M+ PROTEXT:

There are various ways that PROTEXT in all its many versions can be encouraged to work better than in its 'straight from the box' form. The most common queries I get are about improving the way it controls the user's printer. Rather than get side-tracked here I would just say read the manual and follow the simple instructions. If you've got a 'pirated version' without a manual - tough! If you can prove you have any official version but no manual, I'll help you all I can.

My working copy of PROTEXT has been customised by the use of SETPRINT.COM on the master disc to allow easy use of all the BJ200's built-in features including overlining, double crossing-out lines, script and about 20 other font combinations. The resulting printer driver BJ200.PTR loads automatically, as does a configuration file called PROTEXT.CFG which contains pre-set information on the page length, screen colours, default drive for text (B), etc This is created using CONFIG.COM, also on the master disc. Both these processes are 'once only' jobs, though you may decide to fine tune them a little after a period of use.

One of the easiest and most versatile features of CP/M+ PROTEXT is its 'exec' files. These are even simpler to create than BASIC files but run in a way similar to them. You can easily configure key combinations to produce short phrases of text, redefine characters to produce (as examples) a tick or half symbol. You can even set up exec file lines to drop out of PROTEXT and load another CP/M program (say, the file manipulation utility NEWSWEEP) then return to the document you were editing in PROTEXT when you've finished with NEWSWEEP. And it's so easy - it must be if I got the hang of it so soon after coming to PROTEXT. I have an 'exec' file called EXFILE which automatically re-configures many of my keys as PROTEXT loads.

But, you may be thinking, doesn't this take ages to load each time? Well, no. My next tip (and this applies to any disc with several program files) is to spend some time configuring the program using SETPRINT, CONFIG and an EXFILE, then copy all the files you will be using to a newly-formatted disc in the order they will be accessed from the disc.



The order mine load (so have been put on my working copy of PROTEXT) is as follows: (1) DISC.BAS - The 'CPM' one-line file (2) The CP/M+ file - called CPM3?????.EMS (3) SUBMIT.COM - from your CP/M+ master discs to load... (4) PROFILE.SUB - a text file created by PROTEXT, see manual, to load ... (5) RAMDOS.COM and (6) PROTEXT.COM - the main program file (7) PROTEXT.CFG to configure page size etc (8) BJ200.PTR - my printer driver (9) STARTUP - a file to load the 'exec' file (10) EXFILE - a text file with key configurations as described elsewhere, and (11) SPELL.COM - the spelling checker part of CP/M+ PROTEXT.

After this lot, I have added two 'exec' files to the disc:

- (1) xnswp - to save the text I'm working on, and load NSW.COM. When I leave NEWSWEEP, PROTEXT will reload, as will my text so that I can resume where I left off.
- (2) xdat - after setting up some of my keys, EXFILE loads this file which asks me what date I want preset on key CNTRL-D for the day.
- (3) NSW.COM - the excellent file utility program available from Richard Sargeant, our PD librarian.

Just before you finish this marathon session, take a newly-formatted D20 disc and use the 'copy' routine built in to PRO-

TEXT to copy everything in user group 0 from the 'dictionary' side of the PROTEXT disc to drive B (copy a:.* 0b), then go into user group 3 and repeat the process (copy a:.* 3b) as there is one file in user group 3 of the master disc.

I appreciate this sounds like a marathon, but you may not need all of these files for your purposes. And the rewards gained by running a proper, fully-configured program with logical keystrokes and simple command system backed by easily re-configured program characteristics will dispel any thoughts of dropping the CPC for another computer and its word processor which will be slower to load, over-featured for your purposes, and more expensive to maintain.

In use, CP/M+ has many short-cut command instructions which give it the edge over the AMSDOS disc and rom versions. I have already referred to the more efficient system of nipping about in the

command line for editing purposes. Well, in addition, a tap of the COPY key retypes your previous line for this easy correction method if you've made a mistake. Also most commands, like 'sp' to check the spelling of your text, or 'ctb' to count the words in a block of text come in two or three letter options for speed. CNTRL and f3 together catalogues the disc in use and CNTRL and f9 wipes the .bak files.

You may find CP/M+ PROTEXT's many mail-merge facilities, and/or some of the more esoteric spelling checking utilities, are too advanced for your purposes for now, and so be it, but once you try an example or two from the manual or some of your own creation, and it's that easy that you can make up your own, you'll wonder how you ever managed without them.

Snippets of Wisdom

By Robert Drever
& John Packham

No.1

When peripherals fitted to the computer start to "play up" and it appears to be due to poor contact, then I switch off the computer, disconnect the peripheral and clean up the edge connectors using an ink rubber that is wedge shaped. This shape is especially necessary to get access to the connector on the computer. I have used this on occasions with great success.

No.2

If you have obtained the Libindex disc from the library and wish to print out the catalogue and do not have a word processor or "Textread" programme then you can use a small routine as below do so.

```
10 OPENIN "filename" [Libindex.Txt or
what ever]
20 WHILE NOT EOF
```

```
30 LINE INPUT #9,a$
40 PRINT #8,a$
50 WEND:CLOSEIN
```

You may wish to set your printer to adjust the margins as the printout is over to the left of the page and in Draft Condensed Mode.

I would suggest using manual insertion for the paper for the printer as both sides of the paper can be printed on thus saving paper as the index is quite extensive. I then put the pages together in book form using a plastic cover with a plastic strip to hold them together [the ones you can buy in an office stationers shop for about 30-40p each] or else use a ring binder. You can then browse through the Index at your leisure.

CLEARING LINES:

If you have some information on screen and at some point in the display you need to delete a certain line or lines then proceed as follows. First, position the cursor to the beginning of the line using LOCATE. Then use PRINT CHR\$(18). This deletes an entire line. If you need to delete several lines then you could possibly use a loop of some sort.

CLEARING WINDOWS OR PARTS THEREOF:

If you have a window on screen containing text information, and you need to delete several consecutive lines, then try either of the following. First, position the cursor to the beginning of a line, then, either use PRINT CHR\$(19) or PRINT CHR\$(20). CHR\$(19) will clear the area from the top of the window to the line containing the cursor. CHR\$(20) will clear an area from the line containing the cursor to the end of the window.

SIMPLE TEXT DUMP (PRINT OUT):

If you need a text dump routine and don't wish to use up valuable memory with

some specific machine code routine, then try this..

```
10 FOR z=&bf00 TO &bf06
20 READ a$
30 POKE z,VAL("&" + a$)
40 NEXT
50 DATA cd,60,bb,32,07,bf,c9
```

The above few lines simply pokes in some code to read from the screen the character currently under the cursor. It even remains if you reset the machine with CTRL+SHIFT+ESC.

At the part of your program where you require the dump, you need to use a FOR..NEXT loop as follows..

```
1000 FOR y=1 TO rows
1010 FOR x=1 TO columns
1020 LOCATE x,y
1030 CALL &bf00
1040 char=PEEK(&bf07)
1050 IF x<>columns THEN PRINT#8,
CHR$(char);GOTO 1070
1060 PRINT CHR$(char)
1070 NEXT x,y
```

The above variable 'rows' can be anything from 1-25 and should be greater than the starting value of 'y'. The value of variable 'columns' can be either 20, 40 or 80 depending upon which screen mode is in use. Of course, as it stands, the routine doesn't check for your printer being switched on and on-line so that is your department. Also, make certain you include the semi-colon in line 1050, otherwise the printout will be as one continuous column.

FASTER BASIC CIRCLES:

If you have ever drawn circles in BASIC and found them slow, then here is just one alternative.

Near the beginning of your program include the following lines..

```
10 DIM si(360),co(360)
20 FOR num=1 TO 360
30 si(num)=SIN(num)
40 co(num)=COS(num)
```

50 NEXT

Now put your circle drawing routine into a subroutine like so...

```
2000 REM CIRCLE
2010 FOR num=1 TO 360
2020 ORIGIN x,y
2030 DRAW radius%*si(num),radius%*
co(num),colour%
2040 NEXT
2050 RETURN
```

The 'radius%' and 'colour%' speak for themselves and are set up prior to calling the subroutine. Variables 'x' and 'y' in line 2020 are the coordinates of the centre of the circle.

If you want to see the difference in speed, change line 2030 to...

```
2030 DRAW radius%*SIN(num),
radius%*COS(num),colour%
```

You could even change the DRAW command to a PLOT command.

Attention!

If you have any useful tips or even complete type-ins, then why not send them to the Executive Editor now.

Although we don't give gifts for tips, we do for type-ins that we use. So, if you send any type-ins, let us know which free gift you want from our Prize List elsewhere in this magazine.

Please give a choice of at least three.

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- | | |
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96	Personal Computing !!!	130	CPM Simplified
97	Intro to Microcomputers !!!	131	The Amstrad CP/M Plus \$\$
98	Teach Yourself Electronic Microcomputers !!!	132	Using CP/M
99	A Microprocessor Primer	133	Inside CP/M 86 !!!
100	Practical Logo on the Amstrad	134	An Intro to CP/M Plus
101	Computer Programming !!! \$\$	135	Advanced 6128 Computing
102	Amstrad Assembly Language Course (BOOK & TAPE) \$\$	136	Business Programming on 464
		137	On the Road to Artificial Intelligence CPC 464
		138	Programming the CPC 464
		139	Machine Code Routines for your Amstrad
		140	Understanding and Expanding your 464, 664 & 6128
		141	Making Basic Work for You
		142	50 Basic Exercises \$\$
		143	Exploring Basic
		144	Amstrad Sound, Graphics & Data Handling

- 145 40 Educational Games for the
Amstrad 464 \$\$
146 Practical Programs for the CPC
464 (Damaged)
147 Adventure Games for 464 \$\$
148 Sensational Games for 464 \$\$
150 Introducing the 664 \$\$
151 Amstrad Computing
152 Powerful Programming 6128.
664 & 464
153 CP/M Plus Handbook 6128 &
PCW8256 \$\$
154 Disc Basic on your Micro
155 Bells & Whistles 464
156 Protex A PCW User Guide

HIRING COSTS....

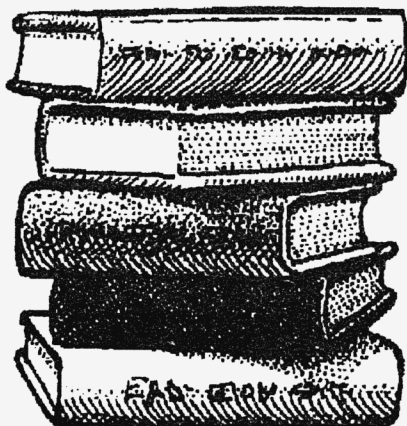
Normal books now cost £1.40p (for 5 weeks)

Books marked \$\$ are £1.75 (for 5 weeks)

Books marked (P O A) are very heavy and the price of postage must be requested from me. (by telephone)

Books marked !!! are not 100% Amstrad but are general computing

To hire a book ,please send me ,your name ,address, club membership number, book required and the money. A cheque or postal order made payable to U.A.U.G.



COMPETITION PRIZE LIST

Listed below are the available prizes for our competition. When entering, please include your preferred prize (either 1 book, 1 disc or 2 tapes).

BOOKS

Using Dr Logo on the Amstrad, Introducing Logo

TAPES

Xanagram, The Big Sleaze, The Inheritance, Return of the Jedi, Enlightenment, Timeman One, Bridge It, Sultan's Maze, World Wise, Animal/Vegetable/Mineral, Roland in the Caves, Artwork Amstrad. Rockstar Ate My Hamster, Beyond The Ice Palace, Super Stunt Man, Inside Outing, 3D Starfighter (2), Flyspy, Bosconian 87 (2), Pulse Warrior, Trace Race, Nuclear Defence, 3D Boxing, Rally Driver, Roland Ahoy, Shark, Ninja Commando, Solar Empire, Battle Tank Simulator, Stairway to Hell, World Soccer, Xcel, Fruit Machine (2), Ocean Conquerer, Tombstowne, Codename Mat, Nexor, Meganova, Eliminator, Trivia Quiz, Jocky Wilson's Darts, Run the Gauntlet, Rally Simulator, Destructo, Las Vegas Casino, Reflex, Strike Eagle, Para Academy, Sabotage, Spaghetti Western, Hideous, Pegasus Bridge, Invaders, Para Assault, Hyperbowl, Tomahawk, Energy Warrior, Star Wars, AA Covertapes Nos 1-41

DISC

3D Chess, Transmat, Lords of Chaos, Winter Games, Cyberball, Badlands, Platoon, 3D Boxing, Roland Goes Square Bashing, Who Said That.



Sounds Galore Pt 2

```

800 REM *****
810 REM Main Program Starts Here
820 REM *****
830 vib.spd=1:vib.var=0:GOSUB 490
840 a$="VIB SPEED":x=37:y=14:GOSUB 570
850 a$="VIB RANGE":x=40:y=14:GOSUB 570
860 PLOT 30,46,3:DRAWR 514,0:DRAWR 0,244:DRAWR -514,0:DRAWR 0,-244
870 REM Draw vertical scale on window
880 FOR i=0 TO 15:PLOT 30,48+i*16,3:DRAWR -4,0:IF i/5=i\5 THEN DRAWR -4,0
890 NEXT
900 REM Draw horizontal scale on window
910 FOR i=0 TO 64:PLOT 32+i*8,46,3:DRAWR 0,-4:IF i/5=i\5 THEN DRAWR 0,-4
920 NEXT
930 a$="VOLUME":x=1:y=12:PEN 1:GOSUB 570
940 PLOT 800,800,1:MOVE 168,34:TAG:PRINT"1/100ths SECOND":TAGOFF
950 REM Declare arrays and initialise variables
960 DIM ev(15,5,3),et(15,2,3),es(15),ec(5,1)
970 REM env section # is -1 if non-existent
980 FOR i=2 TO 15:es(i)=1:NEXT:es(1)=0
990 enum=1
1000 CLS #2:GOSUB 730:esec=1:lx=32:ly=48
1010 REM Main Program Loop
1020 REM Machine Code routine displays and moves pointer until fire button is
pressed
1030 WHILE (JOY(0) AND 16)<>0:WEND:CALL 40000
1040 REM Get the text position of the pointer
1050 GOSUB 630
1060 IF cury=25 THEN 1440:REM On Icon Line
1070 IF curx=36 THEN 1120:REM On Vib Speed Column
1080 IF curx=39 THEN 1140:REM On Vib Range Column
1090 IF curx>2 AND curx<35 AND cury>7 AND cury<23 THEN 1170:REM Insert next
line of graph
1100 GOSUB 590:REM Illegal so ring bell
1110 GOTO 1030
1120 IF cury>22 OR cury<14 THEN 1100:REM Out of Range
1130 vib.spd=23-cury:GOSUB 490:GOSUB 730:GOTO 1030:REM Set new vib speed
1140 IF cury>23 OR cury<14 THEN 1100:REM Out of Range
1150 vib.var=23-cury:GOSUB 490:GOSUB 730:GOTO 1030:REM Set new vib range
1160 REM Calculate and display next line
1170 ny=INT((399-PEEK(40194)*2)/16+0.5)*16:nx=INT(PEEK(40193)/2)*8
1180 IF nx<lx THEN GOSUB 610:GOTO 1030
1190 IF esec>5 THEN LOCATE 9,6:PEN 1:PRINT"Maximum of 5 Sections!":GOSUB
610:FOR dd=1 TO 500:NEXT:LOCATE 1,6:PRINT STRING$(40,32):GOTO 1030
1200 MOVE nx,50:DRAWR 0,236,2:MOVE lx,ly:DRAW nx,ny,3
1210 tim.dif=(nx-lx)/8
1220 vol.dif=(ny-ly)/16

```



```

1230 IF vol.dif=0 AND tim.dif=0 THEN GOSUB 610:GOTO 1030
1240 IF tim.dif=0 THEN step.count=0:step.size=vol.dif:pause.time=1:GOTO 1350
1250 IF vol.dif=0 THEN step.count=1:step.size=0:pause.time=tim.dif:GOTO 1350
1260 step.count=tim.dif:pause.time=1
1270 step.size=vol.dif/step.count
1280 IF step.size=INT(step.size) AND step.count=INT(step.count) THEN 1350
1290 pause.time=pause.time+1:step.count=tim.dif/pause.time
1300 IF pause.time>64 THEN 1320
1310 GOTO 1270
1320 REM Can't form gradient
1330 GOSUB 610:MOVE nx,50:DRAWR 0,236,0:MOVE lx,ly:DRAW nx,ny,0
1340 GOTO 1030
1350 ec(esec,0)=lx:ec(esec,1)=ly
1360 lx=nx:ly=ny
1370 ev(enum,esec,1)=step.count
1380 ev(enum,esec,2)=step.size
1390 ev(enum,esec,3)=pause.time
1400 es(enum)=esec:esec=esec+1
1410 GOSUB 730
1420 GOTO 1030
1430 REM Calculate which icon is being pointed to
1440 op=(curx-13)/3:IF op<>INT(op) OR op<0 OR op>5 THEN 1100
1450 ON op+1 GOTO 1480,1600,1880,2670,2700,2790
1460 GOTO 1100
1470 REM Play scale using current envelope
1480 FOR i=es(enum)+1 TO 5
1490 ev(enum,i,1)=1:ev(enum,i,2)=0:ev(enum,i,3)=1
1500 NEXT i
1510 ENV 1,ev(enum,1,1),ev(enum,1,2),ev(enum,1,3),ev(enum,2,1),ev(enum,2,2),
ev(enum,2,3),ev(enum,3,1),ev(enum,3,2),ev(enum,3,3),ev(enum,4,1),ev(enum,4,2),
ev(enum,4,3),ev(enum,5,1),ev(enum,5,2),ev(enum,5,3)
1520 ENT -1,et(enum,1,1),et(enum,1,2),et(enum,1,3),et(enum,2,1),et(enum,2,2),
et(enum,2,3)
1530 RESTORE 1580
1540 FOR i=1 TO 12:READ freq
1550 SOUND 1,freq,0,0,1,1
1560 NEXT i
1570 GOTO 1030
1580 DATA 478,451,426,402,379,358,338,319,301,284,268,253

```



This instalment was just too large to fit into one issue, so the next and concluding instalment will be in the following issue.

Happy Typing!!

The Membership Secretary

has a few words to say...

First of all I would like to wish all members and Officers a Merry Christmas and a Happy and Prosperous New Year as this is my last message for 1995 even though I am writing it in the middle of October in order to meet the deadline. Do remember that you



might like to ask for a renewal of your subscription as a present this year - or even recommend the Group to someone who then joins us for you will obtain a further 2 months extension on your own membership. 6 New recommended members would renew your own membership for another year.

Next do please quote your membership number in all correspondence or communication with officers, when asking for PD material from the PD librarians and when writing for discount items to those businesses on our lists. In this way we can ensure that the services are available to our members only and deal with your queries quickly.

Would members when sending payment of any kind to the group please make out cheques or postal orders to the UNITED AMSTRAD USER GROUP or U.A.U.G. and NOT to the Officer concerned who then has to pass it through his/her account and pay the U.A.U.G. Do remember all cheques now are marked "ACCOUNT PAYEE" and can only be paid into the account of the person or group named on the cheque.

Still an urgent plea to members - please, please send all matters concerning membership to me remembering to quote your membership number.

Now a reminder about membership - not your own but an additional member if you can recruit one. Whilst our total membership is still around the 180 mark we have lost quite a few of those who joined us after the articles in Amstrad Action in mid 1993 and also lost a few members to the "dreaded PC brigade" although perhaps we can excuse them for a few still keep their Amstrad machine for some tasks. I would therefore ask members to do all they can to give the U.A.U.G. as much publicity as possible and also to recruit new members as well as renewing membership themselves.

There is still a need for letters, comments, reviews, and any other material to fill our bimonthly magazine. Judging by the queries and information I get there is much information that could be passed on to others so let's hear from you.

Should you have any queries please do not hesitate to contact me either by phone most evenings (between 6pm and 7pm is best) or by letter if the matter is not urgent.

By the time you read this article the programs 'CARD50.BAS' & 'CARD90.BAS' should be included on PD Disc 28/1 to compliment my 2 previous programs namely CARD3.BAS and BUSY.RSX.

Some of you may remember that as the result of a plea from one of our members I produced CARDCAS3.BAS which allowed one to print out an insert for a music or computer cassette which only requires cutting around to fit into the case. The late Al "L" Plate Cooper added BUSY.RSX to check that the printer is on line and this programme must be on the same disc as CARDCAS3.BAS.

It was Wally Owen who produced the basics of the 2 programs now added to the Library namely CARD50.BAS and CARD90.BAS which produce printed inserts for CD cases with either 50 characters width or 90 characters width as each title indicates.

They were designed to run using a colour printer but I have modified each programme to run on the basic black output printer but left the codes in the listings mainly as REMS [REMINDERS] so that those with colour printers can have the benefits of colour in the inserts.

If you obtain the PD disc, you must transfer BUSY.RSX with the programs for them to run.

Should you have any queries about the programs you may contact me at the address in the front of the magazine.

Gordon Woollicroft.



"I love Christmas.."

SD Microsystems Supplies

If you're looking for something in particular, give this company a call. This is just some of the items they can supply...

3.5" Drives, Drive cleaner kits, blank discs, lockable boxes, printer cables, printer ribbons, bubble jet refills, copy holders, wrist rests, mouse mats, printer stands, paper products.

Among the software available there is...

Payroll program, stock/account, general ledger, Page Publisher, Picasso Art, Graph Master, Home Accounts, Super Labeller, Discbase, Mailing List, Kwikfile, Clipart discs and the Tasman wordprocessing range.

They can supply goodies for the CPC, PCW and PC.

Why not give them a call. And remember to claim your 10% discount.

**SD MICROSYSTEMS, PO Box 24,
Attleborough, Norfolk, NR17 1HL.
Tel:- 01953 483750.**

Reservoir Hogs

By David Hall

This little program is a game which will probably drive you nuts.

Any \ characters appearing between quotes represent spaces and should not be typed as seen.

```

10 name$="LOFTY":high=600:SYMBOL AFTER 200
20 SYMBOL 201,14,19,123,255,85,1,171,126
30 SYMBOL 202,31,132,222,121,57,30,5,30
40 INK 0,0:BORDER 0:INK 1,15:INK 13,24
50 INK 14,2,14:INK 15,14,2:SPEED INK 5,5
60 INK 5,3:GOSUB 650:sc=0:PAPER 0
70 MODE 0:CLS:LOCATE 1,24:PEN 10
80 PRINT "<SCORE>\\\\\\\\\\<HIGH>";
90 PEN 5:LOCATE 9,24:PRINT "CPC's"
100 LOCATE 8,25:PRINT "FOREVER"CHR$(11)
110 PEN 4:PRINT sc
120 LOCATE 20-LEN(STR$(high)),25:PRINT STR$(high)
130 FOR loop=0 TO 640 STEP 4
140 MOVE loop,46:DRAWR 0,-RND*20.5:NEXT
150 FOR loop1=1 TO 2:FOR loop2=3 TO 22
160 PAPER 14:PEN 15
170 LOCATE loop1,loop2:PRINT CHR$(127)
180 PAPER 3:PEN 1
190 LOCATE loop1+2,loop2:PRINT CHR$(159)
200 NEXT loop2,loop1:PAPER 0:PEN 4
210 LOCATE 3,1:PRINT CHR$(202)
220 ax=20:ay=INT(RND(1)*24)
230 IF ay<3 OR ay>21 THEN 220
240 px=3:fl=0
250 ax=ax-1
260 IF NOT INKEY(47) THEN fl=1
270 IF fl<>0 THEN px=px+1
280 LOCATE px-1,1:PEN 4:PRINT "\"CHR$(202)
290 b=TEST(-28+ax*32,408-ay*16)
300 PEN 11:LOCATE ax,ay
310 PRINT CHR$(201)"\";
320 IF b<>0 THEN 350
330 IF INKEY(47) AND px>4 AND fl=1 THEN 510
340 GOTO 250
350 ENV 1,1,15,2,4,3,2,4,3,4,5,3,2:SOUND 1,100,0,0,1
360 FOR l=1 TO 700:NEXT:LOCATE ax,ay:PRINT "\"
370 LOCATE px,1:PRINT "\":px=3:fl=0
380 IF ax<>3 THEN 220
390 PEN 15:PAPER 14:SOUND 4,0,250,12,0,0.15
400 LOCATE ax,ay:PRINT CHR$(127);CHR$(127)
410 FOR x=ay TO 22:LOCATE ax+2,x:PRINT CHR$(127):NEXT

```



```

420 FOR t=22 TO 1 STEP -1
430 LOCATE 1,t:PRINT STRING$(20,127);:NEXT
440 LOCATE 2,12:PEN 4
450 PRINT "GAME\OW\ER"
460 FOR t=1 TO 5000:NEXT:PEN 14:PAPER 0:CLS
470 IF sc<high THEN 60 ELSE high=sc
480 LOCATE 1,12:PRINT "NEW HIGH SCORE..."
490 PRINT "ENTER YOUR NAME !!!"
500 WHILE INKEY$<>"":WEND:PEN 15:LINE INPUT "".name$:GOTO 60
510 IF ax=px THEN fg=1:tot=ay-1 ELSE fg=0:tot=22
520 ENV 2,8,7,3:SOUND 1,1000,0,0,2
530 PEN 12:FOR t=2 TO tot
540 LOCATE px,t:PRINT CHR$(149);:NEXT
550 FOR t=2 TO tot
560 LOCATE px,t:PRINT "\";:NEXT
570 IF fg=0 THEN LOCATE px,1:PRINT "\":GOTO 240
580 ENV 3,1,15,1,15,-1,4:SOUND 4,0,0,0,3,0,6
590 PEN 7:LOCATE ax,ay:PRINT CHR$(238);
600 sc=sc+((25-ax)*2)
610 LOCATE 1,25:PEN 4:PRINT sc
620 FOR loop=1 TO 300:NEXT
630 LOCATE ax,ay:PRINT "\";
640 LOCATE px,1:PRINT "\":GOTO 210
650 MODE 0:PAPER 0:PEN 11
660 PRINT "\ReSeRvOiR\HoGs!"
670 PRINT "\"CHR$(164)"\Dave Hall 1994"
680 PRINT:PEN 10:PRINT "WHAT TO DO!"
690 PEN 2:PRINT " Kill as many aliens as you can before\\they break through\\the
reservoir wall\\allowing our water\\supply to escape ..."
700 PEN 10:PRINT:PRINT "AND HOW TO DO IT!"
710 PEN 2:PRINT " HOLD DOWN <SPACE>to move your copter":PRINT:PRINT
"\RELEASE\\<SPACE>\\fire the mega-weapon"
720 PEN 13:PRINT:PRINT "HIGH =" :high
730 PRINT"BY\\=" :name$
740 LOCATE 1,24:PRINT "<SPACE> = START GAME";
750 IF INKEY(47) THEN PEN RND*15:GOTO 740 ELSE RETURN

```



Expanding Mastercalc

Part 6

By Brian Soan

As promised, here is the module that enables you to load ASCII files into the spreadsheet. They must of course be arranged so that they will load correctly. Any produced by MC-U1.BAS will do so and are identified by the suffix .MCF in the file name. If you have data from a different source on file, it should be possible to rearrange the data to mimic the .MCF file layout, using either a word processing program or a short BASIC program to do it. This module can then be used to load it into the spreadsheet.

Editors Note...Any \ characters appearing between quotes should be treated as spaces and NOT typed as seen, although the ones in line 410 AFTER the USING statement SHOULD be typed as seen and 6 spaces used between them.

```

250 ' * TRANSFER OF DATA * FILE TO SPREADSHEET * File name MC-V.BAS
260 :
270 ON ERROR GOTO 980
280 bb=10:GOSUB 610:GOSUB 2990:GOSUB 310:GOTO 110
290 :
300 LOCATE 55,3:PRINT SPACE$(24):FOR z=1 TO 1500:NEXT:LOCATE 1,5:PRINT
SPACE$(30)
310 LOCATE 55,3:INPUT"File name ",f$:f$=UPPER$(f$)
320 IF f$="" THEN PRINT CHR$(7)
330 IF RIGHT$(f$,4)<>".MCF" THEN f$=f$+".MCF":OPENIN f$
340 INPUT #9,f$:LOCATE 65,3:PRINT f$
350 INPUT #9,p$,q$:LOCATE 5,3:PRINT "OPTION: "+p$+" TO "+q$+" selected"
360 INPUT #9,m,n
370 a=0:b=n+a-1:mm=m+1:IF m=1 THEN 390
380 LOCATE 5,5:PRINT"There are "m" "+p$+"s with "n" "+q$+"s":GOSUB 930:GOTO
400
390 LOCATE 5,5:PRINT "One "+p$+" only\\\\\\\\with "n" "+q$+"s
400 FOR z=1 TO mm
410 zz=z-1:INPUT #9,n$:LOCATE 1,k:PRINT SPACE$(50):LOCATE 1,k:IF z=1 THEN
PRINT" Headings for "+q$+"s" ELSE PRINT"Title of "+p$;zz:"\\":USING"6 spaces\\":n$
420 IF ss=1 AND z>2 THEN GOSUB 700 ELSE GOSUB 630
430 IF tt=1 THEN GOSUB 830
440 FOR v=a TO b
450 INPUT #9,n$:IF qq=2 THEN 500
460 IF p$="ROW" THEN 470 ELSE 480
470 s=d:u=v:GOTO 490
480 s=v:u=d
490 CALL PUTC,s,u,@n$,@ind$
500 NEXT v:IF z=1 OR z=mm THEN 520
510 IF z=bb THEN GOSUB 890 ELSE k=k+2
520 NEXT z:z=0:PRINT CHR$(7):RETURN
530 :
540 IF ss=1 AND z>2 THEN RETURN

```

PAGE 20

```

970 :
980 IF DERR=144 THEN PRINT:GOTO 1010
990 PRINT:PRINT TAB(28)"** CATALOGUE disc (y/n) **
1000 jj$="YN":GOSUB 3000:IF jj=1 THEN CAT ELSE PRINT
1010 PRINT TAB(24)"*** Re-enter file name (y/n) ***
1020 jj$="YN":GOSUB 3000:IF jj=2 THEN 110 ELSE RESUME 280

```

Well, that completes the main set of modules for speeding up data handling in and out of spreadsheets. However Arnold's Law knows no limits and so there are several other modules on my MASTERCALC disc. For example if you have typed up MC-U1.BAS you will have discovered that there is another module out there somewhere called MC-U2.BAS.

MC-U2.BAS produces an ASCII data file that can be read into a graph drawing program. Another handles printer settings, yet another scans data files. Watch out for coverage of these - and more - in Part 7!!

ERRATUM: For line 270 in module MC-U1.BAS (see CPC USER October 1995) read -

```

270 GOSUB 290:GOSUB 2990:ff$=UPPER$(f$):LOCATE 55,3:PRINT"FILE NAME: "+
ff$:GOSUB 900:GOSUB 970:GOSUB 520:GOSUB 310:GOTO 110

```

WANTED!

CPC Midi interface.

If anyone has one that they wish to be rid of, then please let me know how much you want for it.

W.G.Gifkins, 19 Hamilton St, Pahiatua, North Island, New Zealand.

WANTED!

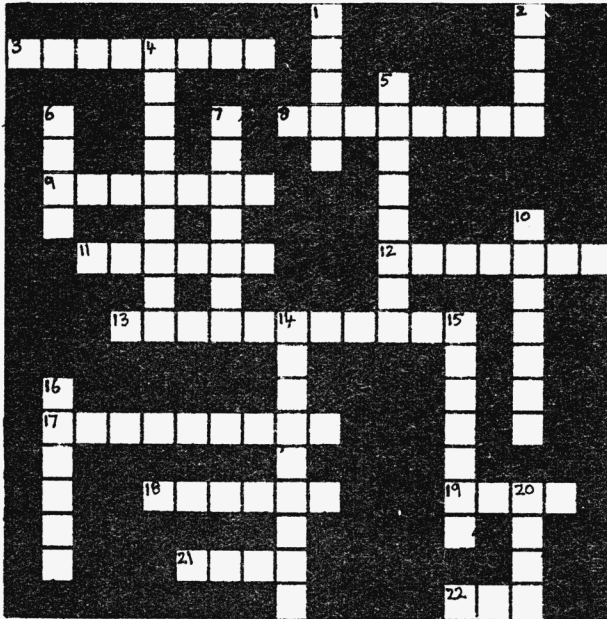
Articles for CPC User.

Why not send us something for publishing.

It can be type-ins, letters, reviews, hints & tips, queries, criticisms or practically anything you like.

Send them now to the Executive Editor.

Competition Time



Clues Across

- 3..Certain
- 8..Designate
- 9..Green gem
- 11..Canopy
- 12..One of the moons of Uranus
- 13..Evolution
- 17..Hypnotism
- 18..Obstruct
- 19..Quarrel
- 21..Calculate
- 22..Utilize

Clues Down

- 1..Opposite of Noa
- 2..Hand over
- 4..Alter
- 5..Belittle
- 6..Not odd
- 7..Quiet
- 10..Exalt
- 14..Child
- 15..Smear
- 16..Hamper
- 20..Adept

RULES OF COMPETITION

Simply complete the above crossword with the clues provided. When complete, take the first letter of each answer and rearrange them to form another answer containing four words. Write this answer down and send it to the Executive Editor to arrive no later than the 10th of next month. The winner will be picked at random from the correct entries, who will then receive a special prize of a DK Troniks Speech unit. A special unit which plugs straight into your machine.

GOOD LUCK!

Convention Report

By John Packham

It was a cold and wet start to the day of September 24th. That made me feel a whole lot better (NOT!). I had to drive all the way from Southampton to Walsall to arrive no later than around 9.45am. That meant I had to leave at about 5.30am. Being a Postman, that was a late start for me so that was no hardship.

On the way up, I had to pull in a couple of times because the rain was coming down in buckets. Still, it did give me an excuse to fill up on pork pies and sandwiches at extortionate prices.

I finally arrived at the Bescott Stadium a little early and was surprised to find the place locked up. After waiting about 15 minutes for it to open, I proceeded upstairs, only to find others had already arrived and were setting up their goods. I was told I could have parked around the back.

Anyway, after setting everything up, people soon started to arrive, and before long the place was crowded. As well as the members selling their wares, there were also a few traders there too so there was certainly plenty to spend your hard earned cash on.

It's also nice to see some familiar faces, and to meet some new ones. I finally got to meet our Programming Languages Editor 'David Cantrell'. Funny, I thought he was older than that!

I'd also like to send a special welcome to Keith Mortimer, Martin Beddall, Charles Gretton, Bob Houston, Ernie Ruddick, John Bowley, Keith Sterrow and Joanne Phipps. I hope you all recieved your application forms and have joined by now. If not, then you're not reading this so it doesn't make a lot of difference. A special thanks to little Joanne who, after what seemed like ages, finally persuaded her

dad(?) to buy the 6128. I hope you enjoy using it Joanne. Please write and let us know how you are getting on with it.

After a prize draw was held (at which I won myself some discs), it was packing-up time and people slowly disappeared into the sunset again for another year. Congratulations must go to Angie Hardwick for organising the whole thing. It certainly went off well and was attended by quite a number.

That's it for now, except to say this...if anyone is planning to go somewhere for eats with Brian Watson, DON'T LET HIM NAVIGATE! Cheers Brian.



Contact!!

This is the place to make personal contact with other members. Simply drop your message to the Executive Editor now to see it in future issues. All notices will be published for the rest of the year.

Local contacts wanted for help and information on programs & operations. I enjoy computers but too much reading and I'm baffled!

Contact... Christine Raisin, 117 Tilbury Rise, Cinderhill, Nottingham, NG8 6DE.
Tel:- 01602 765163

National & International contacts wanted interested in CPC technology and anything else.

Contact... Adam Bates, 19 Cherry Gardens, Bishops Waltham, Hants. SO32 1SD. Tel:- 01489 891125

PD Libraries

DISC PD

Because of the size of the library, you are advised to send for the LIBINDEX which gives a fuller description of the library and only occupies 2 disc sides.

This issue shows the CP/M discs.

PD 1/1 Utilities incl DU, Find, Nswp, Squeeze, Unsqueeze etc
 PD 1/2 Compiler + 32K Doc file
 PD 1/3 ZMAC Assembler
 PD 1/4 Z80 Monitor & Assembler
 PD 1/5 Secretary word processor
 PD 2/1 Prestel link & Smart modem utility
 PD 2/2 Modern Utilities
 PD 2/3 Adv Games, Calendar, Biorythm etc
 PD 2/4 Chess, Golf, Othello etc
 PD 4/1 FORTH Compiler
 PD 4/4 Dazzlestar Disassembler (needs two drives)
 PD 4/5 File compress/decompress
 PD 5/1 Scrivener + doc file
 PD 5/2 Database + Text editor & spell checker
 PD 5/3 MBASIC & Compiler
 PD 5/4 Pascal compiler + doc file
 PD 5/5 Small business accounts program
 PD 7/4 Update of Library util + docs
 PD 7/5 All progs need MBASIC. No docs though
 PD 10/1 FORTH 83
 PD 10/3 Small-C compiler + doc
 PD 11/1 Assorted utilities
 PD 11/2 Assorted utils + Star Trek game
 PD 11/3 Details how to format DS/DD drive as B
 PD 11/4 ISLAND adventure game
 PD 12/2 Disc Editor
 PD 12/5 Small-C compiler + ZMAC, ZLINK

PD 13/1 Demos of ZBASIC
 PD 14/3 SUNix disc utils similar to Rodos (all files squeezed)
 PD 14/4 Comms
 PD 14/5 All files need MBASIC
 PD 17/4 Useful utilities
 PD 18/1 Utilities & assembler code for Superzap.com
 PD 18/3 Formula Calculator
 PD 18/4 Utilities + doc file
 PD 24/4 Examples for MBASIC
 PD 26/1 JRT Pascal
 PD 26/2 JRT Pascal
 PD 26/3 JRT Pascal
 PD 28/1 Business & Utility program
 PD 28/2 PCW World Disc 103A
 PD 28/3 PCW World Disc 103A
 PD 29/2 Print Master System Disc
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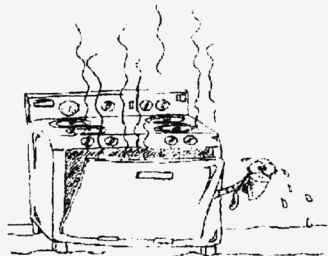
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The Firmware Guide

This is the part where we delve into the good ol' firmware guide to see what is available for machine code programmers. The information here is taken straight from the guide, and although some routines in the guide contain extensive notes, these notes are kept to a minimum here to conserve space. If you need any additional help, then send the Editor a stamped SAE, and he'll be happy to oblige if he can. In the mean time, lets continue...

137 CAS CATALOGUE &bc9b

ACTION:-

Read file blocks and print information about them on the screen.

ENTRY CONDITIONS:-

DE contains the address of a 2K buffer to use.

EXIT CONDITIONS:-

If the catalogue went okay...

Carry is True

Zero is False

A is corrupt

If the read stream was in use...

Carry is False

Zero is False

In V1.1 A contains an error number (&e)

In V1.0 A is corrupt

Always...

BC, DE, HL, IX and other flags corrupt

All other registers are preserved.

138 CAS WRITE &bc9e

ACTION:-

Write a record to cassette.

ENTRY CONDITIONS:-

HL contains the address of the data to write

DE contains the length of the data

A contains the sync character to write at the end of the leader

EXIT CONDITIONS:-

If the record was written OK...

Carry is True

A is corrupt

If an error occurred or the user hit escape..

Carry is False

A contains an error code

Always...

BC, DE, HL, IX corrupt

All other registers are preserved

139 CAS READ &bca1

ACTION:-

Read a whole or part record from cassette.

ENTRY CONDITIONS:-

HL contains the address to put the data read

DE contains the length of the data read

A contains the sync character expected at the end of the leader

EXIT CONDITIONS:-

If the record was read OK...

Carry is True

A is corrupt

If an error occurred or the user hit escape...

Carry is False

A contains an error code

Always...

BC, DE, HL, IX and other flags corrupt

All other registers are preserved

140 CAS CHECK &bca4

ACTION:-

Check that a tape record contains a correct version of the data supplied.

ENTRY CONDITIONS:-

HL contains the address of the data to check

DE contains the length of the data to check

A contains the sync character expected at the end of the leader

EXIT CONDITIONS:-

If the record checked OK...

Carry is True

A is corrupt

If an error occurred or the user hit escape...

Carry is False

A contains an error code
Always...
BC, DE, HL, IX and other flags corrupt
All other registers are preserved

NOW WE COME ON TO THE SOUND
ROUTINES...

141 SOUND RESET &bca7

ACTION:-
Re-initialize the Sound Manager.
ENTRY CONDITIONS:-
None.

EXIT CONDITIONS:-
AF, BC, DE and HL are corrupt
All other registers are preserved

142 SOUND QUEUE &bcaa

ACTION:-
Try to add a sound to the sound queue of
one or more channels.

ENTRY CONDITIONS:-
HL contains the address of a sound
program which must lie in the central 32K
of RAM.

EXIT CONDITIONS:-
If the sound was added...
Carry is True
HL is corrupt
If at least one queue was full...
Carry is False
HL is preserved

Always...
A, BC, DE, IX and other flags are corrupt
All other registers are preserved

NOTES:-
There are extensive notes so please
contact the Editor for further clarification.

143 SOUND CHECK &bca7

ACTION:-
Ask the status of a sound channel.

ENTRY CONDITIONS:-
A contains the channel status

A contains the bit for the channel to test

EXIT CONDITIONS:-
BC, DE, HL and flags are corrupt
All other registers are preserved

NOTES:-
There are extensive notes so please
contact the Editor for further clarification.

144 SOUND ARM EVENT &bcb0

ACTION:-
Arm the sound event to be run when a free
slot occurs in a channel's sound queue.

ENTRY CONDITIONS:-
A contains the bit for the channel to arm
HL contains the address of an event block

EXIT CONDITIONS:-
AF, BC, DE and HL are corrupt
All other registers are preserved

NOTES:-
The channel for which to arm the event is
encoded as follows...
Bit 0...Arm channel A
Bit 1...Arm channel B
Bit 2...Arm channel C

145 SOUND RELEASE &bcb3

ACTION:-
Release held sounds on a number of
channels.

ENTRY CONDITIONS:-
A contains bits for the channels to release

EXIT CONDITIONS:-
AF, BC, DE, HL and IX are corrupt
All other registers are preserved

NOTES:-
The channels to release are encoded as
follows...
Bit 0...Release channel A
Bit 1...Release channel B
Bit 2...Release channel C

Better Use of Memory Part 3

By David Cantrell

We've now looked at ways to save memory by reorganising your data, and how to use the extra memory on 128K machines. In the final part of this series, I'm going to look at how to allocate memory to RSX routines more effectively.

An RSX is a machine code program which adds extra functionality to BASIC, by adding new commands. Bank Manager, which I described last time round, is an example. There is, however, a problem with RSXs which becomes apparent once you start to use more than one or two in any programming project. It is simply that every RSX is assembled to load and run at a particular address. Trying to load them at other addresses will cause them to fail. So you have no control over their placement. A more serious problem is that most authors have their RSXs load at addresses such as &A000 or &8000 - and it is impossible to load more than one at any particular address.

There are two techniques you can use to partially alleviate these shortcomings. The first relies on the operating system itself to allocate memory to the routine, and to move it around in memory whenever necessary, whilst losing some of the more esoteric functionality of real RSXs. The second allows you to write RSXs which can be loaded and run at any address, but with an increase in actual memory requirements. Of course, both have advantages and disadvantages, and the choice of which is better will depend on the particular circumstances.

Executable Strings

In the Amstrad operating system, strings are moved around whenever the program needs extra memory and performs a 'garbage collection'. The operating system is reasonably efficient in this respect. Using the MEMORY command puts an upper limit on the memory available to BASIC, so that machine code routines put above HIMEM will not be affected by garbage collection. If we could use the same memory allocation method as is used for strings, we could allocate memory to our routines more effectively. Consider what a string is: to the computer, it is simply a list of byte codes - such as "48 65 6C 6C 6F", for the string "Hello". Conveniently, a machine code program is also a list of byte codes, such as "3E 07 C3 5A BB", which is the code for LD A,&07:JP &BB5A, which makes the computer beep. So, if we put our machine code program into a string, it will be located in memory like any other string. To put the trivial example above into a string, we could use code like:

```
beep$=CHR$(&3E)+CHR$(&07)+CHR$(&
C3)+CHR$(&5A)+CHR$(&BB)
```

We can execute this code by first finding the address of the data, and then CALLing that address. To get the address, we make use of the value @beep\$, which returns the address of the string descriptor. This is a 3 byte structure, consisting of the string length followed by the string address (in low-byte high-byte order). So, to get the address of beep\$, use the following code:

```
beep$=CHR$(&3E)+CHR$(&07)+CHR$(&
C3)+CHR$(&5A)+CHR$(&BB)
```

```
beep=PEEK(1+@beep$)+256*PEEK(2+@
beep$)
CALL beep
```

We can then use the command "CALL beep" to execute the program, and can pass parameters to it just like any other

CALL or RSX (e.g. "CALL beep,1,2"). There is one very important thing to remember here: because garbage collection can happen at any time, moving our program around (that was the whole point!), we can't simply calculate the address once and then rely on it not changing. In practice, we should put the code to calculate the address to call it into a single subroutine to which we can GOSUB. In fact, even if we do that, it may perform a garbage collection between the calculation and the CALL (unlikely, but possible). To avoid that, we can force a garbage collection just before the calculation, and, if using AFTER or EVERY, should disable interrupts.

```
beep$=CHR$(&3E)+CHR$(&07)+CHR$(&C3)+CHR$(&5A)+CHR$(&BB)
```

```
...
GOSUB 10000
```

```
...
10000
DI:beep=FRE(****):beep=PEEK(1+@beep$)
+256*PEEK(2+@beep$)
10010 CALL beep:EI
10020 RETURN
```

There are, of course, some disadvantages. Firstly, as we don't know where the program will be in memory, all internal jumps must be relative (i.e. using JR instead of JP), and we can't make internal CALLs. In practice, this is not too great a drawback. Secondly, and perhaps more seriously, our program is limited to the length of a string - about 250 bytes. Thirdly, remember that this is not a true RSX. Although we can use it from BASIC, and use a meaningful name such as "beep\$", we can't obtain the routine address from machine code by referring to it by name. This, however, is rarely used for RAM-resident programs (but frequently for ROM programs). Finally, the process of forcing a garbage collection



can be slow. It is however, necessary (and unless your program is very large or you have a lot of data, it is almost instantaneous).

Self-locating RSXs

The second technique for having location-independent RSXs involves the program itself calculating its own address, and then altering itself to suit. This is possible because an RSX consists of two sections - the initialisation section which sets up the RSX, and the code section, which contains the code for whatever the RSX does. The initialisation phase is performed just once (and doing it twice can cause weirdness to happen). If we write an initialisation phase which works out where it is and performs all the necessary modifications, we can then load the RSX at any address, and it will work. Of course, it has the disadvantage that the code becomes bigger, and the initialisation phase becomes quite complex.

To carry out this task, we require 2 bytes (what a lot!) at a known location, which must be available throughout the initialisation phase. Conveniently, there is a block of 8 bytes at &0030 which is unused by the operating system, and which is documented by Zilog as being available for "User Restart". No program can rely on the contents of these addresses, as they are liable to be altered at any time - so it doesn't matter what we do with them. Listing 1 shows a typical RSX (this one is an RSX version of our BEEP program). When assembled, all the labels will become addresses, so we can see that the lines I've marked with an asterisk need altering (any JPs within your RSX code will also need altering).

The first thing to do is write the code to determine the RSXs location. In effect, the

RSX writes a short program at address &30, and calls that to determine its location. Once it has that, and knowing the distance between the start and each location which needs changing, the program can alter itself. To find the address, we use the fact that a CALL instruction puts the return-address onto the stack. Listing 2 puts "POP HL:JP (HL)" into &0030, and CALLs it. It gets the return-address off the stack, and jumps to it, leaving the address in the HL register pair. I have labelled the address retrieved 'start'. We then put this value straight back at address &0030 - so we can conveniently retrieve it. Next, we load BC with the offset to wrkspc, the first value we need to change. We calculate the real address of wrkspc, and store it on the stack. We then load BC with the offset to the address which must have its contents updated, and calculate the real address. Now, we retrieve the address of wrkspc from the stack, and update the reference to it in the "LD HL,wrkspc" line. The other three lines are changed in a similar manner, although we can make use of values we have already calculated, as all four locations we need to change are close together.

You can see that the code to alter the program is quite long and not easy to follow. It only uses simple instructions, so the only barrier to understanding is the logic involved - try tracing what it is doing on a sheet of paper. As you can see, the memory required for the 'locate-and-modify' code is substantial, but it is only needed once - once the code is modified, you can reuse that memory for something else such as data storage for the RSX.

For the trivial RSX example I've given, it is hardly worthwhile to go through all this, the previous technique being better suited, but for larger RSXs it can be a useful technique. And also remember - according to programming textbooks, self-modifying code is a Bad Thing. It works, but it makes

the program much more complex, and is frowned upon on CS courses in schools and universities.

Listing 1

```
LD HL,wrkspc
LD BC,jmptable
JP &BCD1
.wrkspc
DEFS 4 ; reserve 4 bytes
jmptable
DEFW nametable
JP beep
.nametable
DEFB "BEE","P"+&80,&00
.beep
LD A,&07
JP &BB5A
```

Listing 2

```
LD HL,&E9E1
LD (&0030),HL
CALL &0030
```

Listing 3

```
LD HL,&E9E1
LD (&0030),HL
RST &30
.start ; first change
LD (&30),HL
.firstchg
LD BC,wrkspc-start
ADD HL,BC
PUSH HL ; wrkspc
LD HL,(&30)
LD BC,init-start+1
ADD HL,BC ; addr to change
POP BC ; wrkspc
LD (HL),C
INC HL
LD (HL),B
.secondchg
INC HL
INC HL
PUSH HL ; addr of next chg
LD HL,(&30)
LD BC,jmptable-start
ADD HL,BC
PUSH HL ; jmptable
POP BC
```

```

POP HL ; addr to change
LD (HL),C
INC HL
LD (HL),B
.thirdchg
PUSH BC ; jmptable
LD HL,(&30)
LD BC,nametable-start
ADD HL,BC
PUSH HL ; nametable
POP BC
POP HL ; jmpt=changeaddr
LD (HL),C
INC HL
LD (HL),B
INC HL
INC HL
.fourthchg
PUSH HL ; addr to change
LD HL,(&30)
LD BC,beep-start
ADD HL,BC
PUSH HL ; beep
POP BC
POP HL ; addr to change
LD (HL),C
INC HL
LD (HL),B
.init ; Normal init sec
LD HL,workspace
LD BC,jmptable
JP &BCD1
.workspace
DEFS 4 ; reserve 4 bytes
.jmptable
DEFW nametable
JP beep
.nametable
DEFB "BEE", "P" + &80, &00
.beep
LD A, &07
JP &BB5A

```

Last Minute News!!

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was Mr Colin Hazell from Oxon.**

**There were quite a few close
entries but Colin's came out on
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