SAM Community

Mouse Driver and Your Atom

Keeping the mouse driver happy when using a hard drive – program and article by Geoff Bridges

Concatenation

How to take nice neat code, such as that on the right, and make a mess of it by turning it into one line – Andrew Collier can tell you how!

```
10 LET die1=RND(5)+1,die2=RND(5)+1
20 IF (die1<>die2) THEN GO TO 10
30 PRINT "Double ";die1;"!"
40 IF die1<4 THEN GO TO 100
50 IF die1<6 THEN LET score =
   score+1:GOTO 100
60 LET score=score+3
```

Stratosphere

Challenging even for the expert gamer, but Colin Piggot is here to give us a few hints and tips on his own game!

Also inside...

Spectrum 128k Compatibility – discussion by Andrew Gale
Loads of news including the usual Quazar propaganda!
Also...Letters, Why I use a SAM Coupé and Zucchini

Contents

Editorial

Issue 5 arrives and it's on time! Well, no, it's not, but see the back page for more on that subject.

Moving swiftly on... Since the last issue I splashed out and bought myself a new hifi with surround sound speakers. I'm a big music fan, so I thought the surround sound effect would be worth it alone - however, it's had most use when connected to my Quazar Surround soundcard! To say I'm impressed with the surround effects from the soundcard would be an understatement. The Rainforest demo on a recent Soundbyte is my favourite and is something you really have to hear - the surround sound effect is really quite wonderful. I'm currently begging Colin to do more Soundworld items...

Apologies to Andrew Collier who won the Coding Challenge in issue 3, and not Andrew Chandler as I reported! I've always got those two mixed up for some reason. Anyway, I didn't hear Mr. Chandler complain and thankfully Andrew Collier hasn't held it against me and has put together an article on how you too can produce complex programs in one line. Just don't submit your University programming assignments in one line, they won't like it...

The next issue is planned for December. No, really! And yes, this year! If you have any Christmassy bits and pieces, please send them in as soon as possible, especially short BASIC programs. I'm beginning to feel like Bob Brenchley, always begging you lot to write in.

By the way, I understand that one or two copies of the last issue included a little printing error about me shaving my legs if this issue was late - not sure how this one crept in, and if you think I'm going to do it, you've another thing coming...

Anyway, I'm off to get cracking with the December/January issue. Don't forget to check out the new improved website at http://www.samcommunity.org (note the new address).

Gavin

News

End of Bennett Electronics

Sadly, Len Bennett has decided to call it a day and stop producing hardware for the SAM. This was prompted by a heart attack in July.

Len has some unsold items at reduced prices waiting to be snapped up. Do get in touch with him first though, to confirm that they are still available.

Three Atoms at £25 each.
Two printer interfaces, £10 each
Two 256k memory upgrades, £5 each
EDDAC (uncased) £5
S.P.C.2 £10

We wish Len all the best for the future.

"Midi-Kern" project

Justin Skists is the man behind this project - "I've been thinking about picking up my MIDI-Kern project again. It's basically a very simple MIDI-based modular operating system (more like an "application kernel") for the SAM, designed specifically for MIDI programs. It's still very much in the design stages...so don't expect anything soon!

The main features will initially include full control over the MIDI ports (Sys-ex message queuing and buffered I/O), co-operative multitasking, memory allocation, and default VT-style text screen output (nothing stopping you taking over the screen for graphics,

though!)."

Quazar busy as ever

Like a particularly nasty disease that you can't get rid of, Colin Piggot has been hard at work. Not that we want rid of him of course. (So, he's not really like a disease then? A Reader). Good point Mr. Arthur Bridgedale, aged 83, from Norwich.

· Soundbyte News

Soundbyte has been running for a rather incredible five years now, making it one of the longest running SAM zines ever. Since the last SC, Colin has released two issues of Soundbyte, bringing it up to issue 62. The first item on issue 61 is the cunningly titled "Two Tracks Music Demo" which plays two pieces of great instrumental sequenced music, using Colin's 8 to 1 ADPCM compression for 16 bit samples.

Also on the disk is a nice little program that should appeal to

owners of the Sampler Module. It's called Real Time Effects and this little utility samples the stereo input for the Sampler Module, and plays it back with real time effects added, and in surround! The effects are: Echo (plays back the sampled input along with an echo), Chorus (plays back the input with a chorus effect) and warble (which surprisingly enough, warbles the input on playback).

The third item on issue 61 is a game zone called "Machines" for owners of Super Byke Championship - especially for those who found the other zones too hard!

And now onto issue 62 - two items this time, the first is a Mouse Hunt 2, the sequel to the original on issue 48. Mouse Hunt 2 uses the new Total Immersion Sound Worlds code to add more realism to the surround sound! In the game, you have to move around to catch a mouse - all you hear is the mouse squeaking as it runs around you - in full surround sound.

(Or stereo if you only have one set of speakers connected to your Quazar Surround!). To add a new twist to the game, there is also a cat prowling, which will scare the mouse away if it gets too close, making your job of catching the mouse even harder!

It's almost worth getting this just to see how cute the animated mouse is on the menu screen and the end game screen!

Also on issue 62 is a piece of music created with Quazar Sequencer / Quazar Sequencer Pro - it's an instrumental version of the song 'The Real Slim Shady' by Eminem - and it's better than the original. Soundbyte is released monthly from Quazar, priced at £2 per issue (or £5 for 3 issues, and £18 for 12 issues) for both subscriptions and back issues.

• **HD Support for Money Bags 2**
Following on from adding Atom support to Stratosphere last month, Colin has now updated another of his games to be installable to the Atom hard disk. Money Bags 2 now comes in a 4 disk pack = the extra one being the Atom installer and boot disk.
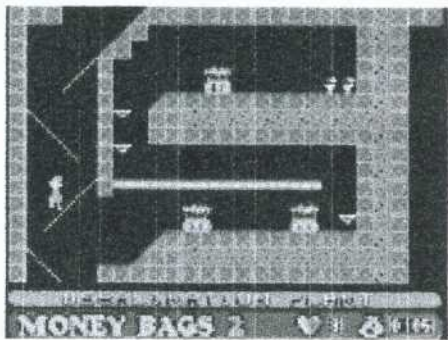
Money Bags 2 is a massive platform style game, with a huge area to explore consisting of over 220 rooms. And features over 1.5 megabytes of continuous music for the Quazar Surround if you have one (Money Bags 2 will still run without one - but

without the great music!)
Money Bags 2 costs £9.99, or if you already own it, then send Colin 3 stamps to cover the costs of the new disk.

• New info pack

The last piece of news from Colin Piggot this month is that an updated information pack is now available from him, with full information, screenshots etc of all his Hardware and Software he has produced for the Sam - 2 pieces of hardware, and over 70 pieces of software, as well as his latest news (including items he is currently working on).
For your own copy, just send a SAE to Colin at : Quazar, 16 Belcanto Court, Wygate Park, Spalding, Lincs, PE11 3FS. Or alternatively give him a call on 07967 118132.

And that wraps up the Quazar news for this issue. If Colin manages to keep working at this rate, we'll have to create a new mag, especially for his products - anyone for Quazar Community?

You talented people

A quick mention goes to Dave Pitcher, a new subscriber. Until recently, Dave hadn't used a SAM for years but is a coder and has been working on a game which is titled "Castle Quest" at the moment - remember Atic Atac on the Speccy? It's going to be rather like that and includes a level editor! Dave says we may see a working version by the end of the year. He has ideas for other games and utilities so on behalf of us all, I'd just like to give him a quick welcome to the scene. Nice to see such enthusiasm! Now get coding Dave...

SAM Renegade?

On the SAM-Users mailing list, Gordon Wallis recently mentioned the Renegade style game he had been working on.

"On the graphics side, I have got quite a bit done. Nothing really 'complete' except for a few sets of backgrounds, and I'm still (occasionally) working through revision 3 of the player sprites.

As for the baddies, I was planning on going back to the drawing board on a load of 'em. Most just weren't *right*... It was going to end up on my website as 'what might have been', but if anyone is interested, I might get active on it again."

Interested? I should think so! If anyone else wants to encourage Gordon, send a note to the mailing list or get in touch with me and I'll let him know.

Outwrite text

Bob Wilkinson of Outwrite and Morse Tutor fame has been coding a little utility for us SAM owners. In his words, "I've just written a program that takes an Outwrite or Tasword file and converts it to a file that can be loaded into Windows Word or Notepad, it removes any control codes and trailing spaces, and puts in a char$ 10 to keep the formatting correct. This might be useful to those people that have files that they would

like to have in print, but don't have a printer on their Sam. It works great when using Simcoupe." Note that this is an application to be used only on a Windows PC - it is available from the File Library but you cannot get SAM files on the same disk.

More Format scandal

More rumours have been circulating on the SAM-Users mailing list about Bob Brenchley from Format Publications, this time regarding SCADS. Glen Cook , author of SCADS had been blasted a couple of times in Format by Bob, but it turns out that it might have been Bob himself who was the crook. Allegedly, Bob was not given permission to release SCADS as PD, nor reprint and sell the manual. Bob has still not resurfaced in the SAM scene although he can be found on the Internet in various newsgroups dishing out advice of a legal nature, among other topics...hmm...

TCP/IP project update

You may remember from issue 4 that Edwin Blink had made a start on implementing TCP/IP on our blue footed friend. Thankfully, the project hasn't turned into vapourware yet - in his words..."I haven't done a lot on the internet project. Wrote a telephone dialer with a simple script, half the Point to point Protocol and some more bits. But didn't come to testing the code because I ought to rewrite the interrupt buffer part." I'm still drooling at the thought of sending email from my Coupé...

More updates

Now up to version 1.04, Edwin's Comet To Text utility now deals with 14 character labels. Edwin has also updated the Windows PC utility, Diskimage Manager - it now supports adding and extracting PC files to or from a diskimage. Finally, Martijn Groen has released yet another BDOS update - it's now up to 1.7j - but because he still hasn't included any kind of version history, I can't tell you what's new - sorry!
http://www.designing.myweb.nl/samc oupe/index.htm

128 Compatibility

Unfortunately the SAM cannot handle 128k Speccy games in their unmodified state, but Andrew Gale has been considering a little piece of hardware to change that. I'll let you read about it on page 13 but do note that this is likely to turn into vapourware - still, it's something to think about.

ZXVGS updated

To be entirely honest with you, I still haven't got around to giving ZXVGS a spin. If you're interested in TR-DOS read on..quoting from Yarek Adamski's email...
"The ZXVGS 0.25 is released. There's no SAM version now, but new Resident Systems Extensions are available, that work also with

ZXVGS 0.24 for SAM. They are:
$B.RZX - TR-DOS emulator for Hobeta files
BZX.RZX - BASIC extension, default suffix for SCREEN$ files is ".SCR"
SCL.RZX - TR-DOS emulator for "*.SCL" archives
TAP.RZX - tape simulator for "*.TAP" files
Z80.RZX - snapshot loader for "*.Z80" files

All those RSXes are placed in:

http://nautilus.torch.net.pl/zxland/ZXVGS025.RAR

The SCL.RZX together with "ABSTRACTION" megademo (170kB with TR-DOS loader; works also on SAM, but without sound) is placed in:
http://nautilus.torch.net.pl/zxland/SCLTEST.RAR

Installation notes inside archive."
If that makes any sense to you, good luck! If not, see next issue's emulation article.

Sad death of Crashed

After changing hands several times, it looks like Crashed has finally reached the end of the road. Reasons for the sad demise are "a new job, a new house, a new location etc. and it's just not possible to donate the time and resources as I used to. The kitty is empty again, its just not working as it should, which is a shame as I enjoyed it." There was no mention of whether or not Crashed would be taken over by someone else, but Dave did hint that he might do a Crashed webzine soon. In the meantime, I'll be pestering Howard Price to see if I can get him to put his excellent articles in SAM Community instead!

www.samcommunity.org

The SAM Community website has now moved away from the .org.uk that it previously had, and now has an address which more accurately reflects the SAM's worldwide fanbase. The site is starting to grow in size and now has an FAQ document (Frequently Asked Questions) on the SAM Coupé, a regularly updated news section and a File Library. At the time of going to print, I have taken the decision to upload files, where possible, in the.dsk format, which is then compressed in the pkzip format. This should hopefully minimise confusion and should make the files available to people no matter what platform they are using. See the website for more information on how to upload and download from it - please note that if you don't have Internet access, the exact same files will be available to you through the post on a floppy disk.
If you are new to the net, the website also details how to join the sam-users mailing list and how to access the #SAMCommunity IRC (Internet Relay Chat) channel where you can meet a few of your favourite SAM people (and me).

MOUSE DRIVER AND YOUR ATOM

by Geoff Bridges

If you have a program which uses the SAM mouse and have copied it to the ATOM hard drive you will have noticed that it hangs up when loading. This is due to the mouse loader file (Mdriver) insisting that the mouse code file is on a disk in drive 1. It is possible to load the mouse code from a floppy disk in drive 1 before loading the required program from the hard drive, however it would be more convenient if the program could be loaded without the hassle of changing records, disks etc. The listing below will alter the mouse loader code to enable it to load from drive 2, either from floppy disk or hard disk.

The loader uses the DOS load file hook code to load the main mouse code after allocating memory and setting up the SVARs used by the mouse. The hook code requires the file type and filename of the desired file to be specified, this is specified in the loader code as D1:Mdriver2. This string is preceded by a byte indicating the file type, in this case 19 for a code file. The listing below alters the loader code by poking the colon in the filename string with 19, this removes the D1 specifier from the filename allowing the main code to be loaded from the current drive. The other poke adjusts the value of the HL register which points to the start of the filename. I would suggest that a copy of the Mdriver file is made before attempting the conversion in case of any problems. Type in the BASIC listing below and

RUN it. The file to convert can be on a disk in either drive 1 or 2. If you are using an ATOM record then use drive 2 and select the required record before running the program.

• Line 10 asks which drive to use and line 20 gives a directory of that disk listing any mouse loader (Mdriver) files.

• Line 30 asks for the directory position of the file to be entered.

• Line 40 calculates the track and sector for the file directory entry. It also determines whether the directory entry is in the lower or upper half of the sector as there are two directory entries per sector.

• Line 50 loads the directory sector to memory.

• Line 60 finds the track and sector for the Mdriver file.

• Line 70 loads the mouse loader file sector to memory.

• Line 80 performs the conversion

• Line 90 resaves the sector back to the disk.

```
10 INPUT "Drive (1 or 2) ";d
20 DIR d "mdriver"
30 INPUT " Enter number of 'Mdriver'
file ";f
40 LET f=f-1,t=f DIV 20,s=(f MOD 20
DIV 2)+1,p= 256*f MOD 2
50 READ AT d,t,s,65536
60 LET t=PEEK (65549+p), s=PEEK
(65550+p)
70 READ AT d,t,s,65536
80 POKE 65546,32: POKE
65833,19
90 WRITE AT d,t,s,65536
```

STRATOSPHERE

TIPS & TACTICS

by COLIN PIGGOT

It's now been nearly three years since I released Stratosphere, so it's about time I shared some of my own tips and tactics for the game...

CYBER CRAFT: *WHICH ONE TO USE ?*

First thing, is consider what sort of Cyber Craft to use. To begin with, I'd have to recommend just playing with the 'Standard' Cyber Craft - it's a well balanced craft with good speed, more than adequate shielding and a lot of ammo. Once you get the feel of the game, then try the others to see how you get on. Once you've tried the three general types then it's best to use a customized one to suit your own. If you're a good shot, you could sacrifice some Shields for more Ammo, to save having to retreat and find some Recharge Pods to resupply. Or if you prefer to complete it quickly, reduce ammo or shields and increase the speed. What do I use? When I sit down for a long game of Stratosphere, I use a 'Custom' Cybercraft and set speed all the way up (8 units), keep Shields where they are (5 units), and reduce the amount of ammo (2 units). I sacrifice Ammo for

10 STRATOSPHERE TIPS

Speed. At maximum speeds, you will be bit faster than most of the initial enemy Cyber Craft you will come up against, and match the speed of the more powerful enemies.

THE GAME: *RUN OR FIGHT?*
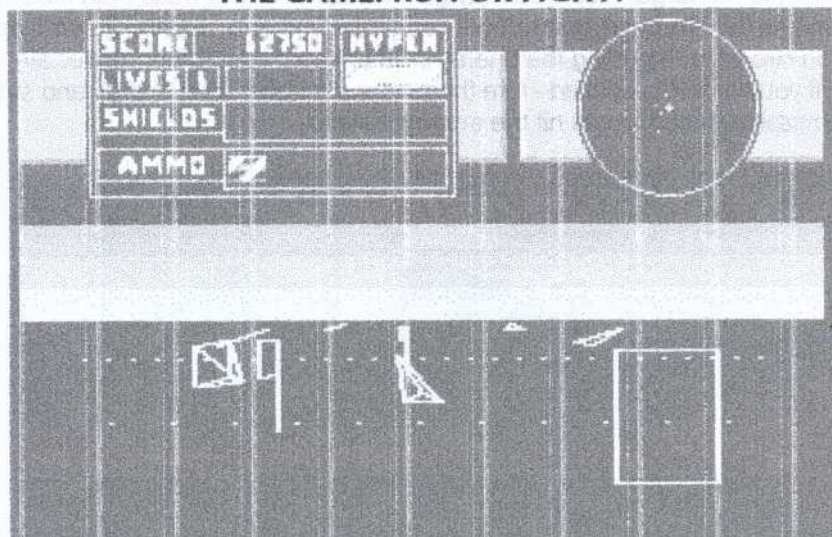
Killed by an Armoured Cyber Craft - perhaps running wasn't a good idea!

Run or fight... good question! That's the two most common tactics for playing the game. Choose or customize a fast craft, and zoom around cyberspace collecting the flags and hopefully outrunning the enemies. Okay for the first few levels, but as you progress through cyberspace it'll get harder. Or if you're a good shot, charge in with high shields and ammo and blast your way to the flags! Both effective tactics... you'll see between levels if you are better at avoiding or hitting enemy craft. My own tactics? Drive Backwards! Simple but effective! Steer towards the flags while driving backwards, shooting at the enemies as they chase behind you, it's quite effective for the first few levels - then as they become faster and have more shielding, ammo will be used up quite quickly, and you'll be swerving quite a bit to avoid their missiles. Other general tactics:

Hyperspace - Never forget about hyperspace! Activate it when your shields have gone and get to a recharge pod as soon as you can, remember it will take a good few minutes for it to recharge so don't go back into battle right away.

The Scanner - Easy enough to glance at for seeing where flags and recharge

recharge pods are, but always check to see where the enemies are - especially after hyperspacing - you may have emerged right beside them!

Structures - Useful to hide behind, perhaps when waiting for the hyperspace space unit to recharge. Also, you may gain a second or two head start if being chased and the enemy cybercraft get caught behind one. Lastly, try running round in circles, and getting the enemy craft to shoot each other, especially useful if you are being chased - lure them near a missile turret and try and steer so the missiles aimed at you hit the enemy instead.
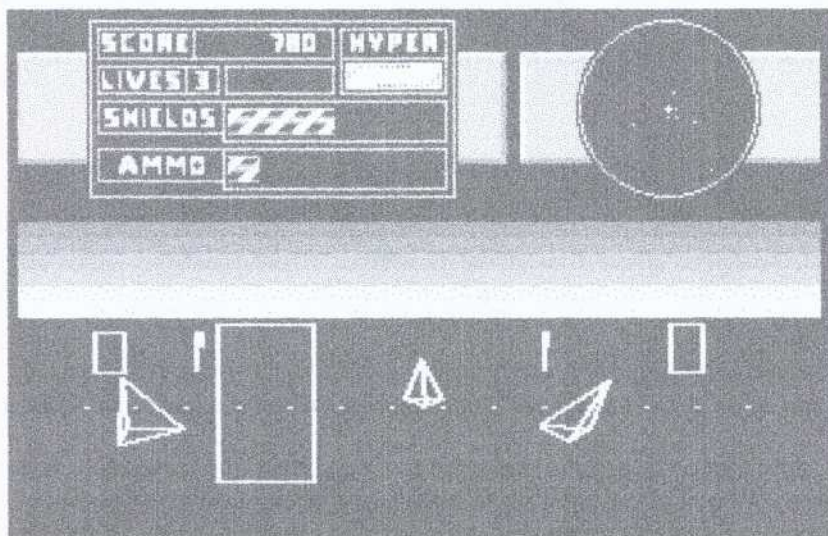
Three structures nearby to hide from the slow Drone, and the fast Interceptor Cyber Craft

LEVEL 40: *THE DREADNOUGHT*

To quote directly from the manual: 'The most powerful cyber craft in existance!'. That sums up the Dreadnought you'll be battling against in the final level of Stratosphere. Armed with the ability to manufactor and deploy other Cyber Craft, and its regenerative shielding, it's an awesome foe. Tactics for this one? Well.... I'll leave you to develop your own.... if you ever reach here that is !

That's my general tactics for playing Stratosphere.... but over time no doubt you'll develop your own quirky way of playing it! Let me know how you get on!

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SPECCY 128K COMPATIBILITY

by Andrew Gale

This is actually a few months old now - it was originally sent to the SAM-Users email list on the 16th of July. It prompted a bit of discussion and might give you something to think about. This is straight from Andrew Gale's original email...

OK, since there seems to be some interest in this, I thought I would mail my musings on the subject.

The SAM's memory map, as you know, consists of 4 16K chunks called A (0-3FFF) B (4000-7FFF) C (8000-BFFF) and D (C000-FFFF). The Speccy 128 map also has 4 16K chunks, A being one of two16K roms - this would be replaced by the 32K RAM which would be loaded with an image of the ROM before switching to 128 mode. Incidentally, the z80 in the SAM would be disabled, and a new z80 attached to the expansion port is being used instead (for both SAM and 128 mode).

Now, page D of the 128 map can point to one of 8 16K chunks of ram, whereas pages B and C always point to the same two 16K pages. By juggling the a14 and a15 lines from the z80 before they reach the SAM's ASIC, we can map the128's memory map onto the ASIC's memory map like this:

```
128    Sam's ASIC

A      - (goes to one of two 16K pages in the 32K ram)
B      B
C      A
D      D
```

In other words, the non-pageable 32K chunk in the 128 map maps onto a 32K page specified by the SAM's LMPR register, whereas page D (which can bank in 16K pages) maps to a16K page specified by the SAM's HMPR register.

The trick then is to catch any writes to the 128's banking register and convert this to a write to the SAM's HMPR register, with a certain amount of twiddling to the value that is being written. The LMPR register would be set prior to switching to 128 mode. Since the z80 is hanging off the back of the SA, it is quite easy to catch writes to an output port and divert them to a different port.

There's one more snag: the 128 can take its screen from one of two of its 16K pages, and this is determined by setting or unsetting a bit in the same register

as is used to control the 128's memory paging for bank D. Any modification to this bit has to be reflected in the SAM's VMPR register. So, a, written to the Spectrum 128's memory/video port (port FD, I think) has to be converted to a write to two SAM ports - HMPR and VMPR. This can be achieved with a simple state machine.

There are some other minor complications - the Sam's FD port will need to be re-mapped to elsewhere in the spectrum's i/o map, other ports may need re-mapping, a soundchip will be necessary to give the 128 sound, and 128 peripherals may not like working at a 6MHz clock. A bonus is that the 32K ram could be used as a soft-rom when in SAM mode. Also, speccy peripherals may or may not be accessible in SAM mode - simple things like joystick interfaces, speech synthesisers and so on should be OK, but a multiface won't be. (That said, I think I know how to make a SAM multiface if anyone is interested).

So there you go, something to think about. I think it's very do-able, but possibly not worth the effort (except for the challenge of the design).

Andy

SAM Community - on a SAM?!

If you're interested, you can read on page 22 my reasons for sticking with the Coupé. One of them is all about the challenge and learning new things in the process. SAM Community is produced entirely on an Apple Mac using AppleWorks 6 and Adobe Photoshop 5.5. Most photographs you see in SC are taken on a Kodak DC280 digital camera and then cleaned up in Photoshop before being imported into AppleWorks. Appleworks is also used to maintain the database of subscribers. Finally, screenshots of software are taken using SimCoupé. If you're a Mac owner, you're no doubt shouting out loud "AppleWorks is *not* a DTP program!" Indeed! Although a little fidgety in

areas, it has proved adequate so far though. However, I thought recently, in a bout of stupidity, why not produce SC on a Coupé? A Coupé magazine produced on a Coupé - that would be nice! Here are my thoughts on the subject. Firstly, the only real DTP program I could consider is **SC_Word Pro**. Whilst there are one or two other contenders (including PCG), only Word Pro offers the kind of high resolution fonts needed to make a professional magazine. I'm a big fan of the Atom hard drive system, but whilst there was a hard drive version available, I assume it is for SD Software's hard drive - I'd loved to be proved wrong though. I would also have to get my hands on a 1 Meg

Concatenation

- or -

How you can write really complicated BASIC programs which will
surprise your friends and relatives by turning out to be actually only one line
long.

by Andrew Collier <ascii@post.com>

You might remember reading in issue 4 of Sam Community, that "a certain Mr Andrew
Chandler" had won the Coding Challenge by writing a worm game in one line of Basic.
Well, actually he didn't - it was me in fact - but it really was written in only one line and
now I'm going to tell you exactly how it was done.

It's sometimes hard to ignore the fact that BASIC, as a language, is usually quite
heavily criticised for the way it can encourage sloppy programming. But while it does
indeed allow the programmer to employ a horrible spaghetti-ridden mess of GOTOs
etc., Sam's own variation of the BASIC language is actually advanced enough to
allow you to write perfectly clean and structured code. If you want to be able to write a
significant one-line program, then the first step is to learn how to use the available
structuring to your best advantage.

The most obvious restriction in writing a one-line program is that you get neither line
numbers nor labels, and that in turn means you're not allowed to use GOTO, at all.
Ever. But at least that's not a problem because you really don't need to use it (in the
totally overwhelming majority of cases anyway). It's easy for me to just say that, of
course, so let me demonstrate instead with a couple of examples of where GOTO
perhaps might have been used, and how to go about replacing it.

E.g. a) as part of a loop structure

```
10 LET die1=RND(5)+1,die2=RND(5)+1
20 IF (die1<>die2) THEN GO TO 10
30 PRINT "Double ";die1;"!"
```

```
DO :
  LET die1=RND(5)+1,die2=RND(5)+1 :
LOOP WHILE (die1<>die2) :
PRINT "Double ";die1;"!" :
```

E.g. b) as part of a case branch

```
40 IF die1<4 THEN GO TO 100
50 IF die1<6 THEN LET score =
   score+1:GOTO 100
60 LET score=score+3
```

```
IF NOT die1<4 :
  IF die1<6 :
    LET score=score+1 :
  ELSE :
    LET score=score+3 :
  END IF :
END IF
```

Note that I've used the "Long IF" structures here, because we also can't count on the

way that a short IF terminates itself at the end of the line. For the same reason, we can't use any REM statements; anything following them would always be ignored.

There are some more constructs you should use with care, or try to avoid. DATA statements become much less useful than usual; usually you can use the RESTORE command to start reading data from any specified point of your program, but that use requires a line number. When the whole program is on one line, you can only start reading from the very beginning of all your data. Fortunately the ITEM function works properly in a single line program. It will return 0 after you have read the last item from a particular data statement, even if there are more data statements on the same line.

Subroutines cannot be used for the same reason as GOTOs: there is no way to specify a starting line number. Fortunately, BASIC provides an alternative structure - DEF PROC, which is entirely compatible with single-line programs.

So now we know how to write a program which doesn't rely on line numbers. What we have to do next is take the step of inputting our program into the computer. It's not as simple as it might sound, because the usual method of editing lines of BASIC doesn't work well for long programs on one line.

The Sam's built-in editor is great for writing short lines of basic, but really starts to slow down when the line has more than about a hundred characters in it. And even if you had the patience to cope with the editor's speed, you can still never edit any BASIC line which fills more than the screen if only because you can't see what you're typing. If you've got a copy of my worm game from the SCFL, you can see that the listing is several pages of text, at least in MODE 4, so clearly I had to have found another less direct solution.

An approach which looks good at first glance, but actually won't work, would be to store the program in a character string, and just use KEYIN to make it a runnable program. Strings are easy enough to edit, you could even write your program in a text editor which is designed for working on large files. Unfortunately, it turns out that KEYIN can only cope with strings less than about 500 bytes long.

So, this is where I start talking about concatenation (just like the article's title said I was going to). If you can't edit your program as one big line, then you might as well carry on editing it as several short lines and then stick them all together after you've finished. This also has the advantage that you can run the program to test it before it goes onto the single line, and everything should still work correctly (you may not be relying on the presence of lines and line numbers, but that doesn't mean they'll get in the way if they actually are there).

The process of sticking the lines back together requires a little knowledge of how BASIC programs are structured. All detailed information you could ever want is in the Sam's technical manual, but the only things you really need to know about are that:

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1. The BASIC program starts at the address pointed to by the contents of system variables &5a9f (page) and &5aa0 (offset), that's SVAR 159 and SVAR 160
2. Each line begins with the two byte line number, stored (unusually) as high-byte first; then follows the two-byte length of the line including these 4 header bytes. The line itself (which includes tokens for keywords and invisible floating point forms of numeric literals) ends with a &0d carriage return character.
3. After the last line is a &ff end-marker.

The following short program uses that information to concatenate a BASIC program in memory. Starting at the beginning of the program and running until it reaches the REM statement in line 9999, this program adds each line onto the end of the first, removing any extra information from between the lines, and keeps a running count of the length of the new line. When the line is complete, we store the length of the new line in its proper place, and replace the &ff marker at the end of the program.

You can add these lines to the end of your program, and then run them. Don't break into the program while concatenation is taking place, otherwise Basic will not be able to find lines where it expects them to be and your Sam will probably crash! (Of course, make sure you only type the text printed in courier font here. That's the program, and all the rest is comments).

```
9999 REM ***END***
10000 SAVE "backup"
```

Making a saved copy is highly recommended when you're directly manipulating the contents of memory. Also, it means that you still have a version of your program written in short lines, which you can go back and edit if needs be.)

```
10010 LET from=16384*(1+PEEK SVAR 159)+(-32768+DPEEK SVAR 160)
```

The ROM stores addresses in memory as three bytes. First is the RAM page number, where a page is 16384 bytes long, and there are 32 of them in a 512K Sam. The start of the page numbered 0 is at the address which Basic calls 16384 (addresses 0 to 16383 are actually part of the Sam ROM). Second is an offset within the particular page, which is stored in two bytes and is always between 32768 and 49152. Here we're setting the variable "from" to be the address of the start of the first line of the program.

```
10020 LET lenaddr=from+2,store=from+4,total=0: DO
```

lenaddr is the address where we will eventually need to store the length of the new line. total is the total length of line so far concatenated. store is the address at which we will be moving the text of the next line.

```
10030 LET linelen=DPEEK (from+2),total=total+linelen
10040 POKE store,MEM$(from+4 TO from+2+linelen)+":"
```

Because MEM$ includes the characters on both the beginning and end boundaries, this line will copy (linelen-1) characters from the original location. The (linelen)th character would have been the carriage return, which we do not want to include in our new line. We replace it with a colon, which marks the beginning of a new statement just as is required.

```
10050 LET store=store+linelen,from=from+4+linelen
10060 LOOP UNTIL MEM$(store-10 TO store-2)="***END***"
```

Continue doing the same for every line in the program until we have reached the last line we intend to concatenate.

```
10070 POKE store-1,13,255:DPOKE lenaddr,total
```

Instead of the last colon, we put the necessary carriage return character back in, and follow it with the &ff program end-marker. As an exercise you may want to try removing the whole of the final REM statement by placing the end marker earlier (but be careful to take account of the change in length of the line for the "total" variable).

And now you too know how to concatenate! Even if it isn't actually very useful... :-)

SAM Community – on a SAM?!

interface as the disk swapping in Word Pro gets incredibly tedious. Whilst I would be typing straight into Word Pro, contributions may be in a different format, perhaps on a PC disk. Assuming the writer uses something sensible such as Notepad, and not Word, this won't cause a problem as there are several ways (including KE_Disk) to read the disk and also a number of ways to access the plain text.

There are numerous database options to pick from which should easily handle the subscriber's list as well as AppleWorks does. Several have been published in SAM Supplement and Fred over the years and the fact that they might be in BASIC is a bonus as I can easily modify them as needed - adding hard drive access for example. The professional choice might be **SC_Filer**, judging by the reviews it received at the time of its release - again, the downside of this is that it might rather difficult to hack a hard drive version out of it. I don't own it, so I can't say for sure though. Unfortunately screenshots would have to continue to be taken in the SimCoupé emulator as I have no other means of getting them. Getting the screenshots and photos into Word Pro is something I'm not sure can even be done. It's been years since I've used Word Pro - however, in the later half of its life, Zodiac magazine was produced in Word Pro with pretty good results. We would most likely have to lose the colour covers but would that be such a great loss? Much of the graphics work would likely still be done in Photoshop but some could surely move to **SAMPaint** - there is a hard drive patch available too! In any case, the database is likely to be held on a SAM before long but there will be a lot of experimentation before the actual DTP-ing of SC moves to the Coupé. I welcome your thoughts on producing SC on a Coupé and I would also welcome any advice.

Letters

Dear Gavin,

Thanks for the excellent 3&4 issues of SAM Community. Ron Deeks wrote that he needs a SAM Power supply. I bought a couple a year or two from Greenweld in Southampton - I rang them but they seem to have disappeared. The Hoddesdon branch took most of the stock - but hasn't found any SAM Power Supplies. They said to try WCN Southampton who took some Greenweld stock - it was no good as I can't find this company. However, if you put Ron Deeks in touch, I do have a spare one.

I recently found an old 48k Spectrum power supply. Can any reader sell me one? Also, since the Millenium, my SAMbus shows the "year" as I5. Is there a fix for this?

Finally can anyone sell me a working SAMbus?

S.M. Burton, Dorset

Will enclose your address with Ron Deek's copy of this issue so he can get in contact if he still needs a power supply. I have a number of Speccy power supplies so give me a shout if you still need one and I'll post one out to you (out of the kindness of my heart). Wasn't aware of the Millenium bug in the SAMBus as my SAMClock from Bennett Electronics has no problem. You didn't say whether or not I could print your address, so if anyone has a SAMBus for sale, let me know and I'll pass on your details.

Dear Gavin,

Thanks very much for issue 4 of SAM Community and many congrats on all your efforts. Sadly my SAM Coupé finally died and I somewhat reluctantly bought a PC and I am now gradually learning the way around. At 83 it's an interesting challenge.

I certainly miss the enjoyment of my attempts at programming and especially at little animations. It's now a problem to force the PC to do things my way, and not the way that "Windows"/Word etc think that I ought to want. For example it took quite a time to persuade "Word" that I prefer to put my address at the top right in the old fashioned way! ...I still like to keep contact with the SAM, especially to see references to old friends like Dave Tonks, Geoff Bridges and others to whom we owe so much of our enjoyment of SAM. I noted reference to Edwin Blink's "SAMViewer" - does this mean that I can get SAM screen files into my PC? I had a look at Edwin's website but my Dutch failed me!

Vic Taylor, Dorset

*Sorry to hear about your SAM dying
Vic! You didn't say what was wrong
with it, perhaps it can be saved?
Edwin Blink's SAMViewer does
indeed allow you to get SAM screen
files into your PC. I own a Mac and
don't normally use a PC but I tried out
Edwin's utilities (including the
Diskimage Manager) and found them
easy to use. The website was in
English the last time I checked! It has
moved though -
http://www.designing.myweb.nl/samc
oupe/*

Dear Gavin,

Thanks very much for your offer of a
loan for a power pack, should mine
pack up, I will keep that in mind.

John Hunter came to the rescue
regarding the problem I was having
with the Y2K bug in my copy of the
Secretary work processor...

I was very interested in the Atom
Interface but regret to say that at the
moment I am still unable to get my
hands on a suitable hard drive!
Nowhere seems to have any old PC's
anymore! I don't want to invest in the
interface and then find that I can't get
a drive, but needless to say that I will
keep hunting for one.

I was wondering whatever
happened to Bob Brenchley's stock
of SAM hardware such as the new
SAM Elites, power packs, rebuilt
SAMs which were swapped in for the
new Elites etc etc. I would have
thought that he might have offered
his now unwanted SAM items (as he
seems to have abandoned the SAM

scene) to anyone interested in
keeping the SAM going as long as
possible.

It seems that there is only two of us
SAM users left down here between
Brighton and Shoreham - there used
to be a SAM user in Shoreham, but I
never got to know him. Have you any
contacts in Spain - I was thinking of
the guys who produced the SAM
Juggler demo and wondering
whether they had worked on any
software for the SAM.

I know the problems I am going to
have keeping my SAM going:
1) I use a Star LC-24/10 Printer and at
the moment have a small stock of
separate coloured ribbons, how long
they will last I don't know!
2) I have a few empty double sided
DD diskettes, and don't know where
to get any more - certainly nowhere
down here.

I love my original MGT SAM - never
had any troubles with it (touch wood -
ha ha) but fear the worst in that I may
sometime in the future, have to resort
to buying a nasty PC!

Finally, I am looking for a Spectrum
game called 3D Tanks or 3D Tanz. Do
you know of anyone who has Speccy
games for sale?

Well Gavin, hope everything is
going well for you and thank you for
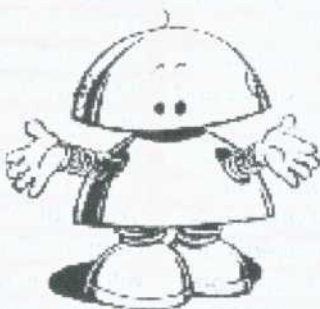doing an excellent job in keeping
SAM alive.

P.S. ...Please let me know when
my subs are due

Ron Deeks, West Sussex

Not so sure you'll think I'm doing an

excellent job now, after the lateness of this issue!

It seems relatively easy to get hold of old PC hard drives but perhaps it's something that it would be worthwhile for the SAM Community to source and sell - anyone else interested?

As with a lot of things involving Bob Brenchley, the whereabouts of his SAM stock is a mystery. What worries me is that the lot has been taken to a dump but knowing Bob well enough, I'd say if he thought he could still make a few quid from it, it will be lying around somewhere. It seems, however, impossible to get in contact with Bob these days.

I remember reading in Format years ago that the people who wrote SAM Juggler were indeed writing software, the first of which being a spreadsheet which Revelation Software were supposed to publish. I don't recall reading anymore on the subject - does anyone else?

On the subject of floppy disks, yes, these are becoming hard to find, but stocks have not dried up completely. For example, if you have Web access, try http://www.microwarehouse.co.uk. Issue 6 of SAM Community will also have branded disks available in packs of 10.

As for the Spectrum game, again, the Internet is your best bet. Sites such as http://www.ebay.com have no end of Speccy games for sale. Depending on the legalities, you may also find it fairly easy on the Internet in snapshot form.

Finally, on the matter of subs, I get a number of letters from people worried that their subscription is about to run out. There's no need to worry however, as you will receive a reminder notice with your final issue. From next issue onwards the final issue will be printed on the envelope as well.

You might have noticed that John Hunter kindly helped Ron Deek's with the Y2K bug in the Secretary. He also sent the information to me. It seems most worthwhile printing, but despite having it all for several months, I've yet to check out the copyright situation on this nor get in touch with Tony Kinch who coded the revisions. There's just not enough hours in the day! Hopefully it will make a good article for a future issue.

Write for SAM Community (please)

I enjoy putting together SAM Community - it's hard work but I enjoy it. To keep it fresh and interesting, we really need some regular writers. Regular columns that I'd like to see include -

◦ Machine code column
◦ BASIC column
◦ Hardware projects
◦ Info on SAM hardware
◦ Reviews (games and applications)

Of course, if you haven't the time for a regular column, one-off articles are just as welcome. They can be on any subject that interests you. If you really can't do any of the above, please do write in with the odd letter with your opinions and views on any subject. Thanks and I look forward to hearing from you!

WHY I USE A *SAM COUPÉ*...

Many people (who have never owned a Coupé I might add) ask me why I bother with our blue footed friend. What's the point in bothering with a computer which is *so* old? How can you possibly enjoy using such a primitive computer?

My first computer was an Acorn Electron, followed by a series of numerous ZX Spectrums. When I destroyed my last Spectrum, a +2A trying to modify something or other (it seemed a good idea at the time) I decided to splash out on this wonderful machine I had been reading about in the glossy magazines. 512k! A floppy disk drive! All those colours! And it looked good too! When I received my first Coupé I was amazed and fell instantly in love. It had and has one of the best versions of the BASIC language I have ever used, far better than the Speccy's rather poor attempt. I still think every computer should come with a programming language - it's not a real computer unless you can program it, is it? It felt nice to use too , it's sloping top making it comfortable and easy to type on. The size of the Coupé's scene has never been its strong point but the sheer talent of the userbase soon became clear through issues of Fred and other disk magazines. Incredible demos and games lit up my screen and at the same time, a real community spirit could be sensed.

Nowadays things are a little different. For a start, the Coupé isn't the only good looking computer anymore! The Apple iMac has led to colours permeating lots of technology. The Coupé's once brilliant graphics have been far outdone by PCs containing many more times the RAM on their video card, than the Coupé has in the whole machine. Those of us who are interested in the Internet, have really had to get another computer. I have three Apple Macs, which are vital to my business and are also used to produce SAM Community.

But despite all this, I've yet to gain as much enjoyment from any other computer, as I have from the Coupé.

I've yet to learn as much from any other computer as I have from the Coupé. And I've yet to be involved in a scene like the Coupé's. Yes, relatively speaking the technology is old, but that doesn't mean it's redundant. I love to see how others, more talented myself, can push the machine in terms of hardware and software. Of course, some huge American company can develop items of hardware at a rate we can only dream of but isn't it incredible when one or two people come up with a version of that same hardware for our little Coupé? And even better, these are real people that you can get to know, people who will share the ideas and thoughts with you in places such as this magazine or on the sam-users mailing list etc - they aren't faceless corporations. Perhaps it was SAMCo's death that *forced* us all to survive in what way we could as a scene and opened up opportunities for lots of small bedroom based software companies - some of which went on to produce games like Lemmings and Stratosphere.

The Coupé scene is very much alive and there will always be people who are interested in the machine, whether for nostalgic reasons or just because they like to see what can be done with this little machine. The scene remains strong and seems to be actually growing if readership numbers are anything to go by. There are a number of interesting projects going on, which leads neatly onto...

THE FUTURE!

Is there a future for the Coupé? I think so! The lack of Internet access from the Coupé is a problem but one which I feel will be properly addressed over the coming year. Edwin Blink is working on a TCP/IP stack and hopefully we will get some usable results before long. One or two other people have also expressed an interest on working on such a project. Once we have TCP/IP, it is a much shorter step to getting software up and running for Email, IRC, ICQ, even a web browser. I'm very much looking forward to chatting on IRC on my SAM.

The Coupé's other big problem is spare parts. Items are starting to die on our machines and there aren't always the spare parts available. Second hand SAMs are not in abundance either, so keep watching out at those car boot sales. All is not lost though, it is possible to replace the SAM's keyboard and mouse for example with PC equivalents and hopefully the designers of these projects will allow me to put the information in this magazine in the future. I can't say anything else at the moment, but keep an eye out over the next few months as the hardware situation may ease a little...

Every now and then the question of a brand new SAM rears its head - it's yet to materialise but maybe that's another project for the future...

What is going on with...
SAM
Community

Another delayed issue! You would be forgiven for thinking that SC will never be bi-monthly so I thought I would take a few minutes to explain the delays and make some reassurances about the future of SC.

I have mentioned it on several occasions now, but I am starting a business and on occasions that has to take precedence. Generally what happens is that I get behind with my work which means I get behind with work on SC and when those two things happen I try and blank both from my mind, putting them to one side! What a bad tactic - eventually it comes to the point, where I *have* to catch up on work and I *have* to get SC out, even if a few months late...Basically I'm a badly organised person but with the (friendly) kick up the ass I have been receiving from several readers lately, I think I'm going to have to become better organised in future! Apart from a few people for whom I am most grateful, it's been hard getting you lot to contribute material. (Oh here he goes, blaming everyone else!) However, if everything goes according to plan, next issue we should see a regular new column which should appeal to most readers. I can't say anything more at the moment so you'll just have to wait for the next issue. Another regular column starting next issue is a little history tour through the eyes of fanzines and diskzines - each issue will examine a random quarter year of SAM's life. Finally, especially aimed at those who aren't on the Internet, there will be another new column outlining thoughts and articles written by those of us on the mailing list - it should also prove a useful summary for those who are actually online. So, that's the new material out of the way - the presentation of the magazine itself will also get an overhaul, with a professional look which is already being worked on. The rather secret new column mentioned a few lines back will likely necessitate an increase in the page count - couple that with a slightly smaller font (this page or see Andrew's article on page 15 for examples), and the word count per page should increase quite a bit. This will allow good quality in-depth reviews for example, rather than the poor attempts at squeezing in a screenshot and a few words as in issue 3.

I get asked quite often about uploading the magazine to the Internet in (for example) PDF format. For the foreseeable future however, SC will remain paper- based, firstly, because I just prefer reading a paper magazine and secondly because the SAM has no easy way of accessing the Net - when it does, I will consider some option for download.

But what if you don't like SC? Well, next issue comes with our second questionnaire to allow you to express your opinion on anything regarding SC. I look forward to many sarcastic comments regarding the lateness of each issue!

Next Issue...

Issue 6 (Dec/Jan) of the new improved SC will drop through your door on the 11th of December. Deadline for items is the 6th.