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ZAT

CONTENTS

GENERAL

COMPUTER

Cover by D. Blackburn.

EDITORIAL

by D.BLACKBURN

Firstly, two apologies.. a) For the lateness in sending out last issue. Now whether you're superstitious or not, I don't know. As it was, putting last issue together was hindered by all manner of problems..From myself coming down with a very bad case of head flu, our local printer's machines breaking down (and themselves overloaded with work for the Election- which caused a delay in receiving our printed issues back)..which leads to b) for some of last issue's pages being of very poor quality, which we hope to make amends in future issues..and other nagging calamities..

We aim to ensure, and promise to all our readership, that no issue of ZAT will be late again. To keep this promise, we've made a slight alteration. This should be a MAY/JUNE issue, not a JUNE/JULY issue So why aren't we covering May? We'll since other mags date their issues a month ahead in relation to the month to the month an issue is actually released..we've decided to do the same. So from now on expect every issue to be despatched/available within the last week, every 2 months. Confused? I hope not.

So what's in this issue Well apart from the regular sections there's a article on how the Spectrum has spread to a worldwide audience of users..In fact this issue is geared towards the Spectrum fraturnity slightly more than usual as this issue (in a pre-news format) represented ZAT at the ZX92 convention in Cambridge to celebrate 10 years of Spectrum computing. David attended the event and a full report is featured this issue.

Also I'd like to welcome to ZAT the lucky readers who won our free sub prize via YS's Fanzine Competition We're hoping to run more competitions like this to boost readership Speaking of competitions, remember this is your last chance to enter our Manic Miner competition and win a signed copy of the game.

Next issue's Editorial, I will be making a "major" announcement as per ZAT. So until then, take care and see you soon. D.B.

ZAT 14 JUNE/JUL 1992 Editor: D. Blackburn Acting Tech Editor D. Ledbury Advertising/P.R. D. Ledbury & P. Sheppard Proof Reader: M. Garbett CONTRIBUTORS M. Scholes, R. Swann, S. Kemp, , D. Addey, A. Davis, D. Cannon, Mike A J & S. Wilson

And now for a less than average (?) look at the problem of porn on PD....

Yes, they're all talking about the latest "teen" menace. In the '50s it was "horror comics", in the '60s it was listening to pop pirate radio stations, in the '70s it was football hooliganism, in the '80s it was heroin but now in the 1990's it is computer porn!

Another media inspired problem perhaps? How many of the teenagers who might now be tempted to seek out porn disks only do so because grubby minded, alcohol soaked hacks have decided to turn their purulent attention onto what is addmitedly a problem, but a relitively minor one? - Ableit until the tabloid press and lightweight magazines for bubble brained airheads got hold of it and blew it out of all proportion!

A lot of nonsense has been spouted about the evil pornographers who are spreading porn on PD disks. - Er, hold on folks! PD disks should be either free or very low cost. People who produce and sell pornography are in their business for the same reason that other people sell, for example, bicycles. They have perceived a market need for certain products and have decided to make money supplying these products or services.

People who sell bicycles won't give away their wares and neither will people who sell pornography. Whether we like what they sell or not, pornographers are after all, business people.

No, the people behind these porn disks are silly little boys who probably will neve grow up and who have more high tech computer equipment than is good for them.

I can just picture the scene in some bedroom in - what shall we say? Suburbville; "Cor Baz, I've just had a mega-brill idea. You know that hard core book you've hidden under the floorboards, why not see if we can digitize it?"

That worked, so they started to swap them with their equally brain devoid spotty little mates, progressing onto other, "greater" things, digitizing stills from a porn video that they had swapped for a pile of Batman comics. Then their over-indulgent and unaware (uncaring?) parents splashed out on the necessary equipment to begin having moving hard-core porn on their computers! - Gosh how exciting...

Perhaps various vice squads would like to investigate some of the more blatent PD libraries and remind them that PD means Public Domain and not Porn Dealer!

Some of the articles in the press (if we can call it that) mention tat the spotty little kids from the planet Acneoid are doling out pornography invloving animals. Perhaps the RSPCA would like to investigate these PD libraries, too? (Animals have enough problems with being gassed, hunted, used in vivisection labs, etc without having to put up with this kind of abuse.)

But the kicker is this... Where do the porn images come from? From published magazines and videos. Normally, people who have copyright material ripped off in such a blatent way would sue. A word of warning to any spotty little herbet who is sniggering as he posts off or sends

more ripped off porn down the wires. Hard core porn is illegal in Britain. So those who deal in it or produce it are criminals. If (WHEN?) they found out who you are, they may well come round to your house armed with a sledge hammer and a blow torch - one for you and one for your computer. Perhaps you'll get to choose which one they use on you? I sure as hell wouldn't like to be in your shoes, boys!

Don't forget readers, if you want a chance to air YOUR views or opinions in ZAT's SOAPBOX, or you have an issue you would like to pass to Martin to look into, please write to ZAT at the usuall address, which of course is:

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ZAT RE-SUBSCRIPTION DRIVE

This issue marks a point were many ZAT readers are due to re-subscribe, as they have now had their full years worth of magazines.
To re-subscribe to ZAT, for a full year (6 issues), now costs £7.20 - or £9.00 in Europe. However, as we are fairly kind and generous (if not particularly rich!) sorts, we'd like you to feel that you are getting even more of a bargain by taking out another subscription. So, listed below are the benefits that ALL subscribers are entitled to, now and in the future:

1) A full year of ZAT! This includes FREE technical help, friendly service, and all that you know us for!
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4) Plus other ideas, still on the drawing board!

Answer this question correctly when you resubscribe, and you could win a prize!

What was the real identity of former ZAT Adventure section writer, Andrew Vincent?

So, just send your nice cheques to:
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Please make cheques payable to: ZAT, and PLEASE list your computer system (Computer/s, drives, printer, memory, misc. interfaces, modems, etc) and interests, likes, dislikes etc.

Don't delay - write today, right away!

Back-chaT

BY ANDY DAVIS

Last issue, we introduced the new command called PAUSE. The task of this is to wait for a brief period, the number after the command determing its wait period. Beware, as some computers call their PAUSE command WAIT. Both mean the same thing. Also beware of the number following the command, as the numbers aren't seconds. The compute finds seconds very slow, so it works in fiftieth of a second (or sixtieths of a second in the USA). So 50 50ths is one second, 100 50ths is two seconds and so on. 75 would be one and a half seconds. Using numbers like this means you can accurately halt the computer for very small, accurate lengths (or shorts) of time. The most common occurance for a wait period is usually one second (50).

Let's take a break from programming for the rest of this issue and move away from BASIC and look at what else the computer can offer.

99% of all 8 bit computers come with BASIC as standard as it's cheap, easy to learn and is usually bog-standard, so almost any basic programs will convert onto another machine with little orno modification (usually sound and graphics, where all machines differ).

In 1984, a new machine came out on the market, called the "Jupiter Ace". This machine was made by some designers of the Spectrum and looked uncannily like a fusion of the Spectrum and ZX-81 in a white case. The major difference was that it didn't contain BASIC, but FORTH.

FORTH has the advantage of customisation and power. You can create your own commands (very much like the PROCedures) and complex programs canbe written in just a few lines. Sadly, FORTH is difficult as well as complex for new users. There are no line numbers and programs are run in a top-down fashion. The good thing though, is that programs written in FORTH are easily transportable to other machines as there are defined standards of the language, like FORTH-79, FORTH-83, FigForth and PolyForth. The only slight differences are that the newer FORTHs have better commands to process data. These commands can be simulated on older versions by just defining a new command. If you're interested in creating your own customised keywords and functions, then this is for you.

PASCAL is very much a beginners language. It, unlike FORTH, is very much like BASIC, but doesn't feature line numbers. The idea of Pascal was to teach students to use the top-down fashion of programming and to not go leaping around programs with unwanted GOTOs and GOSUBs. Pascal centres itself around its procedures and its main advantages are for graphics and visual use incorporating prowerful programs. The only problem is price. Most languages come equipped with a hefty price tag on them. Also, you've probably noticed that support for utility software has dropped to around 0% at your local store. The only place I can find Pascal (The Hisoft version) is from Turbosoft. Give them a ring on 0525 377974. You will usually find an advertisement and price list in Y.S.

[HiSoft can be contacted on: 0525 718181, or by writing to The Old School, Greenfield, Bedford, MK45 5DE. They still supply both PASCAL + C for the Spectrum, and they also supply these and other languages that run under the CP/M Disk system. These MAY work on SAM under the new PRODos system.

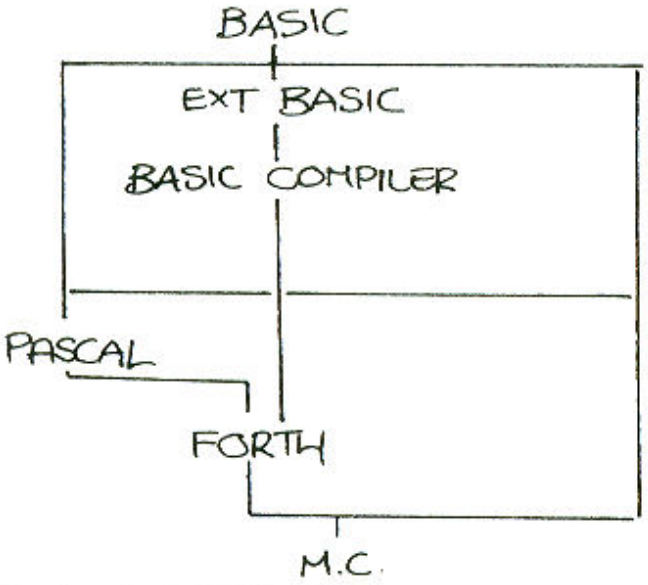
We'll let you know if they do, soon! DL]

Stick With Basic

BASIC is an excellent beginners language and I'd recommend learning BASIC before moving on. But it's slow and sometimes lacks useful commands, so what do you do?

The Tree of Knowledge

Here is a tree structure of the logical steps to take when progressing through the language world.



Start at BASIC, if you want to stick with it a bit longer, but would like more commands and a little more speed, then get an extended BASIC program. An ideal one for the Spectrum is BetaBasic. SAM owners have all the features of Spectrum Basic and BetaBasic. Ocean's Laser Basic and Scope2 are other examples of extended basics which are primarily used for games writing.

The next logical step is a compiler. This has to be one of the most useful utilities available. What it does is converts your program into machine code! So, no learning code, just write in basic and convert! The only disadvantage with this is that the compiler (which reads your program and turns it into code) may take up some vital memory, leaving only around 20k for your program. Some compilers also need an operating routine which needs to read the compiled code and turn it into something meaningful the computer will understand. There are quite a few still around. The first is ZIP, featured in the first few issues of Your Spectrum. This was replaced by ZIP2 which was available on the Crash Tech Tape. The latter needed an decoding routine to convert the compiled code into code the computer could understand. Mcoder3 is available to inspect from the Spectrum Software Hire club. You can find the address in AlchNews. Then there's Hisoft Basic, in my opinion the best compiler ever. The 48k program takes up only 11k and the code generated can be located anywhere in RAM, even where the compiler is! The 128 compiler is stored in ramdisk and takes up only 500 bytes of normal ram!

Hisoft is a "floating point" compiler. In laymans terms, this means it can deal with numbers from 0 to 65535 and -32767 to 32768 as well as decimal points. This is where it has the advantage over other compilers which can deal with whole numbers only between 0 and 32768. It also comes with a comprehensive manual and lots of demonstration programs. The compiler is accessed by pressing both video keys on the 128 to get a menu or by simple * commands on the 48. (Eg. *C to compile) You decide where you want to compile your basic by popping in a REM: OPEN£ to start compiling and REM: CLOSE£ to stop. Then, the compiler will convert the basic between these two statements only! The speed at which the basic is converted to code is phenominal and it finds errors and bits which can't be converted, like all tape commands and some RESTOREs. The last quoted price from TurboSoft was £18.99, but ring first to check.

Compilers have many pros and cons and its best to try one first before you

buy. Nearly all will show significant improvements on speed when calculating, but beware, because when using graphics commands, most compilers just send them to the ROM graphic drawing routine which is just the same as typing your PLOTs and DRAWs in BASIC. Some compilers might feature a new drawing system in their code, but this runs down the amount of bytes free for your program and may need a large amount of code in your otherwise small compiled program. A good way to check the speed of your compiler is to use the "screen move" method...

First, find 7k of free memory for a screen. If your compiler is stored at the top end of RAM, then use a low address, like 40000. If, like ZIP2, the code is at the bottom end of RAM, use a high address like 50000. But be careful you don't put your screen where your program will be compiled to!

When you've arranged a suitable area, type LOAD "" CODE xxxxx and load in a screen where xxxxx is the address where you have 7k of free memory. On Hisoft BASIC, xxxxx=30000.
Now, type this short program...

```
10 BORDER 0:PAPER 0:INK 7:CLS
20 LET F=16384
30 FOR T=xxxxx TO (xxxxx+6911)
40 POKE F,PEEK T
50 LET F=F+1
60 NEXT T
70 STOP
```

On Hisoft, add 1 REM :OPEN£ and 80 REM :CLOSE£ RUN the program in standard BASIC and see how long it takes to "load" in the screen. Now, compile the program and call the compiled code. What a difference!

If you don't own a compiler, or extended BASIC then I suggest you do, or at least borrow one to see the advantages and extra speed it puts into your programs. If you would like to quest into machine code, well, good luck! The first steps I would take is try and buy some old computer magazines from when the Spectrum was young, like Your Spectrum and Your Computer.

In the early 80's, there were many good books around published by Melbourne House, like "Spectrum machine language for the absolute beginner" by William Tang (ISBN 0 86161 110 1) or "Supercharge your Spectrum" by David Webb (ISBN 0 86161 112 8) or "Mastering Machine code on your ZX Spectrum" by Toni Baker (of Your Spectrum and ZX Computing) (ISBN 0 90563 23 6) published by IP. You can't buy these books any more and are considered quite valuable, but check out the computing section of your local or city library as you'll probably find a copy there. Do the same if you want to know more about Basic, Pascal, Forth or any other language you're interested in. Try contacting the program's authors or publishers if they still exist for usergroups. AlchNews is running a Compiler user group for any owners of any compiler or extended basic utility. If you have any compiler and would liket to contribute, then get in touch, but please try to enclose an SAE to guarantee a reply. The address is..

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Next Month I'll move onto the graphics systems of your computer. If you would like to read more technical data, then subscribe to ALchnews or read MEAN BIZ in this magazine.

PLAYPEN

compiled by POLLY SHEPPARD

NOTE Due to last issue's printing quirk, this page wasn't very legiable to read. To make amends, here is that very same intro by Polly and review of The Match in all their glory

My name is Pauline Anne Sheppard. It is now my task to compile PLAY-PEN and the game reviews that are featured every issue. The Editor had been trying for some time to find a willing volunteer to do the job, but no one else, but myself, wanted the job, so here I am. Now let me reveal my secret: I don't play games, neither do I own a games machine..in fact I own a Amstrad PCW 8256..now hilarity please!

I will only add that I am a secret games fanatic, and the PCW prevents me from spending whole days in front of a screen filled with fantastic creatures, facing impossible odds, and eating the most revolting things! I was taken to Blackpool last Autumn: never again! I spent pounds on a space simulator, from which I had to be physically extracted by my fiance, after threatening the owner if he dared to turn it off. I cannot count the number of dead and injured throughout the arcades as I ejected bewildered children off simulations of "Space Shuttles" and "Formula One " racing cars.

Games: I love them! So you ask how will I be able to handle game reviews. The simple answer is that I do not. As I stated I corolate the reviews kindly supplied by other game fanatics who have done, and continue to do, game reviews for this column.

In this edition of Playpen, my merry band of reviewers have looked over Rainbow Islands, The Match, Hard Drivin and the latest SAM game Batz n' Balls. Something I want to bring to your attention is this. When we review a Spectrum title has been reviewed on the SAM, we've included a special emblem to indicate that this game is SAM compatible. However some titiles maybe SAM compatible even if reviewed on the Spectrum. So if for any reason we don't indicate this and you know otherwise please write in and let us know!

The Match. (Spectrum) Cult Games. £3.99

Review draft by Stephen Mullen

The review for this game leaves me wondering if food is not more important than the match? Managing a football team must be bad, but playing this game must be a nightmare. The game tackles the problems off the pitch as well as on it. How to afford the best players, ground maintenance and the possibility of a riot caused from a lack of pies?

Winning matches is apparently only half the job. Your team must firstly win promotion from the fourth division, failing that a personal reputation can be gained, leading to offers from other clubs. If staying with the underdog is your style, then you have the chance to turn them into world beaters.

There is a long line of Football clones for the Spectrum, but the Match is well put together, and not written in BASIC, like so many others. You may scout for talent, improve your ground, sack players, buy pies (sorry), all the usual stuff. The graphics are good and involvement high. What else do you need?

This game comes highly recommended, not as a master piece of programming, but as an addictive and enjoyable game. A bit like pot really.

RATINGS
PLAYABILITY 80% ADDICTIVENESS 87%

Hard Drivin' (Spectrum) Hit Squad. £3.99

Review draft by Richard Swann.

Driving is a skill that most of us have, but few of us can master. Anyone can drive down to the shops, but try navigating some of the Welsh mountain passes (I've seen a fair few of them) to get a feel of where skilled driving comes into its own. If you haven't got a mountain range next door, this game is the next best thing, or perhaps even better!

Hard Drivin' puts you in the seat of a stunt car racer, with a speed track and a stunt track lying ahead. All you have to do is turn the key, put the car into gear, move off and you're away. You then have to navigate either the speed track (in which you have to go round as fast as possible), or the stunt track (in which you must perform a variety of stunts). If you manage to successfully complete a lap, you get to race a computer car in a headlong duel.

Of course there are certain hazards to worry about, the main one being crashing. If you veer off the road for too long, the computer will automatically put you back several hundred yards (not a desired thing, since there is a short time limit for you to complete a course), after showing you an action replay from an elevated side angle to highlight your embarrassing failures.

The stunt track provides several problematic stunts which you must successfully overcome to stay on the road. First of all, there's the bridge. This is a swing bridge which is half-open. You have to go over it at the right speed so that you clear the gap in the middle of the bridge, but don't go too fast that you become airbourne! Secondly is a 360 degree loop-the-loop. Here, you have to go as fast as possible if you want to stay on the obstacle! Thirdly there's the problem of negotiating a very steep downhill bank: too fast, and you'll launch into the air and crash; too slow, and you'll run out of time.

Any mishaps you may have with these obstacles result in going back before the obstacle, requiring you to try again, and thus losing time.

The original arcade game coin-op features a cow on the road, but I can't say I encountered any four-legged obstacles as I went around.

The graphics for the game are great. Obviously "borrowed" from the Freescape games, they feature a full 3-D view through the windscreen. Furthermore the action replays are shown from a third person's point of view with equally strong animation of the car. Certainly watching the car loop-the-loop both inside and outside is well worth watching. And unlike Freescape the graphic frames are updated fast enough to give realistic real-time motion (which wasn't as important in the Freescape games).

The main fault with the game is the control method. The arcade machine was highly responsive, but because the controls were layed out in the same way as a car, you'd expect it, and be able to drive in a relatively straight course. On the Spectrum, things work very differently. Pressing right turns the steering wheel right, while holding it down turns it more strongly. Naturally if you want to stop moving right, you have to counteract the movement by feeding back the steering wheel to the centre. The same is true for the Spectrum controls, but it doesn't seem right when you're using two keys to control the car, rather than an analogue input such as a steering wheel.

I held down right, and the car jerked left. Then I held down right to counter-act the counter-reaction, and so on ad infinitum. Perhaps a diagram of a steering wheel with the position of your hands marked (such as that in

representing "left" and "right" to varying degrees, and by resting a sellotape tin between the "5" and "6" keys, the feeling of a steering wheel would be given. As it is, I'm afraid the great graphics are ruined by the unsuitable control method.

The only other complaint is the sound, which is totally absent on the 48k, and an annoying drone on the 128k.

All in all, I think this game looks great, but play it and you'll end up getting very frustrated. However I must say that this made the game addictive in some respects.

Compatible

RATINGS
PLAYABILITY 55% ADDICTIVENESS 63%
GRAPHICS 90% SOUND 35% *OVERALL 63%*

Rainbow Islands. Spectrum. Hit Squad. £3.99.
Review draft by Richard Swann.

This is definitely one of the best Spectrum re-releases I have seen yet. In case you didn't know, the game received rave reviews from all magazines and was rated highly in the top 100 games in both Crash and Your Sinclair. But has time been good to the game? Read on..

The game consists of seven islands, each divided into four rounds. The object of each round of the game is very simple- just get from the bottom to the top of the screen in as short a time as possible. This would be easy were it not for the fact that there are lots of nasties patrolling each level. Fortunately, you are armed with an endless supply of rainbows, which can both kill these creatures and provide extra platforms for you to make your way to the top level. You'll have to hurry though, because after a short time, the water level at the bottom of the screen starts to rise, and you'll drown if you don't make it to the top in time!

If you can trap a baddie inside a rainbow, you can be awarded with special options such as extra speed, quicker rainbow throwing, and multi-rainbow power. You'll probably need all three to overcome the gigantic guardian at the end of every island.

The graphics and gameplay are both excellent. Colour is used extensively, and without any clash at all. The characters in the game are all well animated and there is good 128k tune as well (although this gets annoying after a while). Even when many characters are on the screen at one time, it is still easy to distinguish who's who. The game is simple to get into, and extremely addictive, because you always want to know what happens next. I would, however, recommend using the keyboard , as jumping using the joystick can cause some problems. There is no option to define keys, but two possible layouts are available.

If you haven't already got this game, rush out and buy it because it's just as good now as when it was first released!

RATINGS
PLAYABILITY 97% ADDICTIVENESS 97% SOUND 85%
GRAPHICS 85% *OVERALL 95%*

Batz n' Balls. SAM. Revelation
£9.99
Review draft by David Ledbury.

Whatever the computer, there are a number of arcade classics that exist in one form or another on it, such as Space Invaders, Pac-Man, Asteroids, and of course: Breakout. The Spectrum has had a multitude of great [or should that be smashing?] Breakout variations: Arkenoid and Batty, to name but two. However SAM has had none, until now!

For those of you who have been on the planet Zarg for the past 10 years, here's the basic idea. You control a bat by pressing left or a right button. You bounce the ball off the bat, preventing ot from hitting the bottom of the screen and attempt to smash all the bricks at the top of the screen into smithereens!

Bats n' Balls has been programmed by SAM "Tetris" programmer David "Lord Insanity" Gommeran, and his fellow members from "The Lords" PD team. It is his first full-price release, and hopefully not his last.

As with many of the newer versions of Breakout on the Spectrum, BMB also features "nasties" which just get in the way of the ball and bricks that drop "goodies". The goodies include: lasers [to blast away the bricks], end level icons [ends each level], a cushion [to allow the ball to hit the bottom of the screen], multiple balls, extra lives, extra speed, etc. However, also incuded are items to kill you instantly and to reverse your movement.

BNB has 150 levels to tempt you with, but also features passwords, so you don't have to replay all the levels again when you get killed. However, every six screens, you have a bonus round to solve that will give you extra points but it isn't easy to solve! A nastier shock occurs every 30 screens: but I won't spoil it for you!

BNB has great graphics, smooth gameplay, and preety decent sound. [It also has a also has a preety decent cover, but I won't increase Darren's ego by going on about it!]. It also works with SAM mouse, and is [apparantly] much better for being played with it. All in all it's another excellent release from Revelation so buy it and get "batting".

RATINGS

PLAYABILITY	91%
ADDICTIVENESS	82%
GRAPHICS	80%
SOUND	84%
OVERALL	*85%*

That's it for this month. Next time there will be a review of Astroball, which as you may know is Samco's first Spectrum game release [the SAM version is available soon], and which has fantastic review ratings in the main mags.

Glancing through the news pages, the games that I think are also best buys at present are **Midnight Resistance**, **Puznic**, **Castle Master** [reviewed way back in ZAT 3], and the Spectrum version of **Escape From The Planet of The Robot Monsters**. All of these are by the **Hit Squad** and all retail at **£3.99**.

Well, I hope you enjoyed this edition of Playpen, take care and I'll see

PUBLICA DOMINIUS

By Mike A.J. & S. Mullen

This issue sees a welcome return to ZATs PD column. However, due to David's new commitments with SAMCo, SAM Demo Master Mike AJ has stepped in to take the reins of the SAM side of this column. The Spectrum side is being taken care of by David just for this issue, but first it's over to Mike ...

Yes, that's right. Mike AJ is now the writer for Publica Dominius. Being a PD producer myself, I know how much (and how little) work is put into a program. Have you noticed how practically all software, PD or otherwise, seems to receive over 70% as an overall rating? Well, this column is going to be different - I shall be reviewing PD by the standard ZAT ratings (graphics, sound, presentation, lastibility and overall) plus two others; originality and technical achievement. Don't be surprised to see scores less than 30%!

Firstly, I would like to give a new disc mag "PUBLIC" a mention. Yes, I know the SAM already has more than its fair share of good disc-based mags (and many bad ones!), but I think Public stands out from the latest releases. Here is the review of PUBLIC 2:

On boot-up you are presented with a screen which has been turned into a sphere by an Enceladus routine. Unfortunately, the effect isn't totally convincing, since most of the text has become mangled. Now onto a nice standard menu (ie like FRED) with all the usual options. The NEWS section was quite refreshing written in a chatty style. REVIEWS featured detailed reviews of The Sound Machine, Enceladus 8, Void and SAM Suppliment 15. As far as the slideshow is concerned, 2 pictures stood out from the standard ST-ports - one from Shadow of the Beast, and a detailed but rough digitized shot of a Practika camera.

But the highlights of the disc are to be found in the EXTRA section; first is SIGNAL 3 - a 4 part music demo, ported from the Spectrum (European text). Then there is TETRIS 2 by The Golden Triangle (music by Frantisek Fuka). It has a simultaneous 2-player option, superb 'Russian' in-game music and normal and wave modes (eg get 10 lines, survive 20 seconds etc). This game is on a par with Lord Insanity's original masterpiece, and is far better (especially on competitive 2-player mode) than most full-price games. Also in EXTRA are DA COPIER 2, a disc copier which needs MasterDOS; and BALLS 2, rotating balls which make lovely patterns (as in Enceladus 5).

Also on the disc are 3 sample demos, each about 10 seconds long and don't need a sound sampler attached. But the quality is poor, and the samples weren't expertly timed.

Overall, PUBLIC 2 is an absolute bargain at £1, if only for TETRIS 2! Graphics are fairly standard throughout (and SCREEN$ are compressed), with sound being very good from SIGNAL 3 and TETRIS 2. The presentation is mediocre, but will doubtless improve (remember FRED 2!). With more contributions, PUBLIC looks set to become the next FRED! So, to the scores:

GRAPHICS: 55% (some nice stuff, but some poor ST-ports
SOUND: 75% (original tunes in SIGNAL 3 and TETRIS 2)
PRESENTATION: 30% (no use of graphics except the menu)

LASTABILITY: 80% (TETRIS 2 is just as addictive as TETRIS)
ORIGINALITY: 40% (looks very reminicent of FRED)
TECHNICAL ACHIEVEMENT: 50% (besides the EXTRA section, nothing worth mentioning)
OVERALL: 80% (outstanding value for money, with a superb game. Buy it!)

PUBLIC is produced by Sam Buchanan with contributions from Thorsten Gudmundsen. Contact Sam at PUBLIC, 8 Suthmere Drive, Burbage, Nr. Marlborough, Wiltshire SN8 3TG.

And now, it's back to David!

Thanks Mike. Well, since my outburst several issues ago, when I was getting rather irritated over the lack of Spectrum PD, I have been forced to swallow my words yet again! This time, it's down to Tim Kemp ...

As many of you know, Tim - as well as being Adventure Columnist for YS - also runs a Spectrum Adventure related fanzine, From Beyond. However, did you also know of From Beyond PD?

FBPD (for short), has a range of inexpensive PD Adventures. All the games cost a mere 99p (plus stamp) - including multi-part games! When you consider the prices of tape, plus the clear Mac-Printed covers the games come in, that's pretty cheap indeed!

A full review of some of the games available, will appear in Mind Games within a few issues. But in the mean-time, contact Tim for more details at:
36 Globe Place, Norwich, Norfolk, NR2 2SQ.

However, from what I can tell, FB are the only people producing PD Adventure software for the Spectrum. If you know any different, please let ZAT know.

The Wonderful World Of The Speccy!

By Richard Swann

The Spectrum doesn't have much a hold of the British market anymore, perhaps due to Amstrad's plan to kill off the Spectrum, which is a great shame, and perhaps due to the fact that the SAM isn't as nearly as well known as I have hoped it would be by now.
Fortunately, there appears to be a large market for the Spectrum abroad, which may seem rather odd, but is great news for British Spec-chums desparate for some new action on their machine.

The best countries to find some overseas action have been Spain, Russia and South America.

The connection with Spain has a lot to do with Sinclair's market plan, which concetrated in Spain as well as in the UK, thanks to a co-operation with a Spanish company, Investronica. At the time, this was a wise deal, as Spain had a penchant for marketing computers of any description, due to its desire for technology. At the time of the deal (mid-1985), Sinclair's sales were as good as ever, but in fact, Sinclair Research were on the verge of total collapse,and as a consequence, the deal perked up Sinclair's business position for a while.

Some of you may remember the Spanish 128K Spectrum which appeared at the end of 1985. This was due to a joint effort programme between the two companies over a period of six months. As a consequence, the Spanish market were treated to the Spectrum before the British were, due to the ability to manufacture and distribute it there. It was only until importing costs had been sorted out, that the machine was released here in March 1986.

As a result, there is a lot of Spanish Software about. Most of the Spanish software that finds its way across to the UK has come from the software house Dinamic. Dinamic's first games appeared at the end of 1985 in the UK on various labels, before signing to Ocean, and later establishing a UK base with Electronic Arts as distributors. Hit games include West Bank, Army Moves, Game Over, Freddy Hardest and Dustin. The only trouble with Dinamic Games is that they're hard. Ridiculously hard. In fact, pretty damn impossible, most of them. I remember being stuck on screen one of Army Moves for six months, until I worked out how to hack the game! You'll still find a lot of Spanish Spectrum groups floating around.

Russia, however, is a totally different kettle of fish. In Russia, there were no copyright laws; if you wanted something you couldn't get, you could simply copy it. So the Russians decided to embark on mass-production piracy, all perfectly legal, much to the dismay of UK software houses who were kept in the dark about it all the time.

But it didn't just stop at tapes; the Russians went out and built circuit boards of popular computers. The IBMs and Macs available in the UK were just far too complex to rebuild, and too expensive to obtain, so they went out and copied a cheaper computer, which just happened to be the Spectrum. As a result, the Spectrum is one of the most popular computers in Russia, and Poland as well. (YS quote "Good old Poland. We're always getting letters from Poland.") The Polish connection is similar to the Russian one, with the added extra of the Spectrum and Your Sinclair being heavily advertised in a Polish magazine !Batjek! [Pronounced "Bi-Tek", this is possibly THE computer magazine in Poland - with no direct equivilent with any of the UK's games-oriented press! DL]

As a consequence, there are millions of Spectrum clones in Eastern Europe. The most heard about is a device called "The Hobbit" (named after one of the best Spectrum adventures of all time, perhaps?), which has the same sort of Spectrum internals, but has a far superior keyboard, VDU and a disk drive interface as standard. I wonder if Russia will sell "The Hobbit" to the UK like the Skoda?

The lack of Spectrum games, and of computer games in general in Russia meant that they had to write their own - and they did! The most famous example, of course, is the bestseller TETRIS, but there are plenty of other games around, even rewrites of Spectrum classics such as Jet Set Willy.

The South American connection is similar to the Russian one. There are a lot of South American Spectrum users; however, due to the lack of availabilty of software, there is an enormous amount of piracy. Incomplete and unreliable programs can be bought for the equivalent of 30p in some areas of Brazil. Sadly, most South Americans just can't get orginal copies of software, so piracy is everywhere. Someone remarked that if you tried to write to British software houses, they just wouldn't send copies to South America due to the piracy. This simply reduces sales for the software houses, surely?

The South American Spectrum market made its mark with STK, a Spectrum toolkit recently released on a YS Cover Tape.

So, with the world coming closer together, perhaps we British can get our hands on some of the remarkable achievements of foreign software!

Despite being heavily advertised and promoted through-out the Spectrum & SAM world, the overall response to the planned "mega-event" that was originally to have been held on May 2nd, was not very well responded to by the public. This was mainly due to the location of the vennue, date chosen, ticket pricing, and the fact that the promotional material seemed to gear itself more towards people who had made a "landmark" in the Spectrum scene.

But, for the people that did want to meet and talk, the organisers had set up a "mini-event", held at a smaller venue, and it was this which ZAT's intrepid reporter (moi!) visited on May 2nd. Due to the revised and smaller event, several of the noted people originally due to turn up, were not able to. These included Mel Croucher, Sir Clive, and the infamous PiMan (Who has returned, once more, to his tax-exile in France!).

The informal "get-together" was held in a reasonably sized room in a Cambridge pub (although unfortuanatly, my financial situation prevented me from sampling the wares at first hand!). Present, were Dr Andy Wright, Simon N Goodwin, Nev Young (FORMAT Writer, and boss of SD Software), Steve Nutting, Glen Cook and several members of the public. Arriving later in the day were Jon Pillar and Bruce Gordon.

The day featured a number of interesting items. Spectrum Emulation was featured strongly, with several computers running Spectrum Software. This included:

a QL running "Cybernoid" - although rather slowly (S N G mentioned that with a QL with the "GoldCard", it ran much the same as a Spectrum)

an Amstrad 1512 PC running "The Birds and The Bees 2: Antics" (graphics by Matthew "Manic Miner" Smith, for fact fans!), which again was fairly slow, but after all this PC does use a chip which is only about as powerful as a Z80, and isn't overly fast! With a 286 driven PC, it would have been much faster!)

an Amiga also made an appearance! It ran both it's own Spectrum Emulator, which wasn't too fast. Additionally, it ran a QL Emulator, running a Spectrum Emulator, which was about the right speed! The "Ultimate" classic, Attic Attac was on show here.

An Amstrad CPC 6128, was also on show, running a simple demo written in Spectrum Basic. The CPC emulator was been written by Andy Wright, and is apparantly only 10% slower than the Spectrum. However, it will only allow 16k games, due to lack of memory under emulation.

and of course SAM was there, running Android 1, and various other classic titles - naturally enough, SAM is much faster at Spectrum emulation than the other machines on display!

One of the other highlights of the day, was the music. Simon Goodwin played various pieces of music throughout the day - some of Automata's "wacky" material, some Spectrum created music, and some using the computer's MIDI facilities. Quite a range of material!

titles, and ZAT dontated a selection of back issues. A quick program in BetaBASIC by Andy Wright, had the draw numbers displayed in a super-large size. Steve Nutting walked away with a couple of Zenobi titles, and I ended up with one myself.

Some of the visiting people had interesting items to show. Paul King, a dedicated Spectrum user, showed some circuits he had designed using a Spectrum PCB designer. Also Paul was showing some great DTP fonts, designed by an Italian user, which I can't wait to buy! Another user showed off his own alternative Spectrum ROM - complete with inbuilt RENUMBER command and fancy font! I showed a few people Daniel Cannon's great Tetris styled game - Lettis 2. This impressed quite a few people!

Although Sir Clive didn't show up, an ex-Sinclair man, responsible for most of the original Spectrum advertising material, did show up. He mentioned several interesting titbits, such as the fact that originally Interface 1 was going to be built into the Microdrives directly, rather than existing as a seperate interface.

Towards the middle of the day, there was a prize draw. Most people who had turned up had donated something. Simon dontated a copy of an old DK'Tronics title he'd written: Goldmine (on SU a few months back), Zenobi Software - although not physically there - had donated several

Jon Pillar rounded off things, with a

group photo, which should appear in YS. (The bad news is that I'm in it!) Simon Goodwin also revealed what had happend to Flair Technology: the ex-Sinclair team, once responsible for "RAM Print" printer interface, "RAM Music Machine", "RAM Turbo" joystick interface, and nearly the Konix multi-system (a potentially earth-shattering console, once based around the Z80). It seemed that they still exist, but now the wonder-chip that once would have been the heart of a console, now beats inside a "One-armed bandit"!

All in all, not a bad day. The only thing that spoiled it for me was the ending. When a combination of British Rail and myself, ended up with me being stranded in Leicester until 3am in the morning! What a day!

Although the event ended up being much smaller than originally planned, another event in a much better, bigger, cheaper vennue has not been entirely ruled out.

A new SAM!

SAMCo have released details of the latest addition to the SAM family, the new GameStar pack, which is priced at a mere £99.99.

GameStar, is a package which has been designed to promote SAM as an alternative to the consoles currently around. But an alternative that can grow into a more powerful computer system. It consists of a SAM 256k, an improved Spectrum Emulator (from SD Software), "associative" membership of "INDUG" (access to the helpline service, for period), some cassette software, and a starter manual.

As upgrading it to a full spec SAM 512 costs only £79.99 for a drive, and £29.99 for memory, it is a valid way for Spectrum upgraders with low incomes, to afford to buy a SAM.

To coincide with this new model, a range of cassette software has been planned by Format Publications. These will include Spectrum titles - used via the emulator, and SAM titles. Contact SAMCo on 0792 700300 for more details.

New music package!

After the long wait for a SAM Music package was ended by The Sound Machine, Revelation are due to release a second music package shortly. The package, ETracker, has been written by "ace" Czech programming team, ESI.

ETracker boasts full control over the Sound chip, and as ESI boast on their "Out of Colour" demo, it is the "best music program on SAM Coupe, and the best on any 8 bit computer!". After using a pre-production version for a few weeks, I can't argue with that!

ESI are also responsible for a well-known music package, Sound Tracker, on the Spectrum. Perhaps SAMCo may release this one as well? Contact SAMco for more info.

Ballgames allowed!

Astroball, SAMco's first Spectrum release, seems to have done pretty well in a recent YS, after gaining 90%! The SAM version is also now ready.

Revelation have also got another Spectrum title by the same programmer in the offering, Astroball 2: Turbulence, has been described as being rather an "odd" title - but a good game never-the-less! Astroball will be reviewed soon.

It's nearly ready!

Yes, after a long delay, SAM Quartet 2

is almost ready! Anyone who has paid for a copy will get theirs before the end of June. If you don't get yours by then, drop me a line via Quest.

Featured on SQ2 is another great game by Daniel Cannon, an example of Guy Middleton's Terminator 2 demo (which thanks to a great compression program from Daniel, has been cut from over 250k, to just over 100k!), a selection of digitized graphics, some music from the great new Music package Etracker, and some Archimedies graphics - converted to SAM by Daniel.

Printing problems...

Unfortuanatly it seems ZAT's printer, has been forced to increase his printing rate. However, due to our forced price increase a while ago, we have managed to swallow this increase with only one casualty - we are now forced to stick to 32 pages, except for the occasional special issues.

To counteract this, we intend to pass material to Andy Davis's tapezine Alch-News that may not have fitted into ZAT. Likewise, SAM specific items will be passed to SAM Quartet.

This shouldn't effect ZAT's content to any major degree, and further subscriptions will enable us to return to 36 pages. A good incentive to get your friends to subscribe, don't you agree?

Quest ... ready now!

At the time of writing Quest Software, David's new Adventure label, is only weeks from releasing it's first Spectrum title. The game, Doomsday, was written by Enceladus genius - Graham Burtenshaw - and is best described as being rather "controversial" to say the least.
Quest are also responsible for 2 new compilation disks, featuring games from the "Delbert The Hamster Software" label, responsible for Microfair Madness - which was recently given an excellent review in Your Sinclair.

The disks, "Delbert's +D Disk Delights" volumes 1 & 2, feature:
volume 1: Desmond & Gertrude, Aunt Velma's Coming to Tea, Brian and The Dishonest Politician, and Andy Davis's Alch-News 1.
volume 2: Star Flaws, Raymond Pringle's Quest For The Fabled Jar Of Pickled Cabbage, and Microfair Madness (48 & 128 versions).

For more details of these, and other titles, a nice SAE should be sent to the address on the Quest advert. All Quest Spectrum titles will appear on +D disk, and cassette. Cassette versions are provided by DTHS. SAM versions will appear at a later date.

The return of the PiMan?

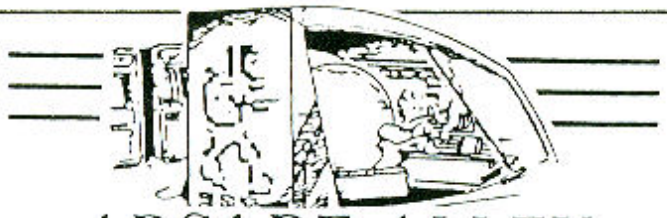
Rumours have been abound, that the most infamous character in Spectrum adventuring history - the nafarious PiMan - is planning to make a return to the screens of the Spectrum, and his first appearance on SAM!

The big-nosed one has recently been seen making an appearance on the Amiga, in the title "Airmania", but apparently he has made plans to appear on more familiar territory at some time during this year. More details as we get them!

Send in the SAS!

Colin Jordan's SAM Adventure System, designed to aid Adventure programmers with Adventure creation, is due for release on June 1st.

The system is packed with features, and is operated via a "window" styled method, which makes programming much easier. More details, and a review or preview, next issue.



ARCADE ALLEY

Richard Swann & Co

Hello there, welcome to another dose of hacks, cracks and POKEs for you all to enjoy. Before I start, I hope to have some POKEs for the SAM written soon, so I'll print them as soon as I get access to a SAM.

HOW TO USE POKES:

POKEs are simple cheat routines which consist of a few lines of BASIC. When RUN, they load the game and activate whatever cheats are present.
Simply type in the listing exactly as it is printed. In particular, pay attention to the numbers in the DATA lines, because they're easy to get wrong. You must make sure you've typed in exactly what's printed, otherwise the POKE won't work!
When you've typed out the POKE, it's a good idea to save it to a blank tape, so you can simply reload it when you want to cheat.
With your POKE in memory, you type RUN and press ENTER. Insert your game tape from the start and press PLAY on the cassette recorder. Wait until the game loads, then cheat away!
Some POKEs do a variety of things. In this case, the REM statement after each line refers to what that cheat that line will activate. If you don't want that cheat, don't type out that line. At the end of the listing, there will be a line called END MARKER. You MUST type this in, regardless of what cheat's you're using, otherwise the POKE won't work!

DEATHCHASE - infinite lives and immunity

```
10 REM DEATHCHASE BY RICH
20 FOR N=32584 TO 1E9
30 IF A<>999 THEN READ A:POKE
N,A:NEXT N
40 RANDOMIZE USR 32584:GOTO 40
50 DATA 221,33,0,64,17,72,63,62
60 DATA 255,55,205,86,5
70 DATA 175,50,95,103:REM LIVES
80 DATA 62,201,50,253,102:REM
IMMUNITY
90 DATA 201,999:REM END MARKER
```

3D LUNATTACK - Infinite lives

```
2 MERGE "":POKE (PEEK
23627+256*PEEK 23638)+31,201:GOTO
20
301 POKE 53129,0:POKE (PEEK
23627+256*PEEK 23638)+31,205:
RANDOMIZE USR (PEEK
23627+256*PEEK 23638)+31
```

CHASE HQ (Budget rerelease) - Infintite credits and turbos

```
10 REM CHASE HQ BY RICH
20 LOAD "" CODE
30 POKE 42562,255
40 FOR N=65280 TO 1E9
50 IF A<>999 THEN POKE N,A:NEXT N
60 RANDOMIZE USR 42496
70 DATA 33,14,255,17,0,64,1,30
80 DATA 0,237,176,195,0,64,62
90 DATA 195,50,48,91,33,14,64
100 DATA 34,49,91,195,0,91,33
110 DATA 229,221,34,49,91
120 DATA 62,182,50,62,156:REM
CREDITS
130 DATA 175,50,165,176:REM TURBOS
140 DATA 201,999:REM END MARKER
```

BMX SIMULATOR II - Infinite time. The POKE will automatically detect whether you are loading side A or side B, and alter the POKE accordingly.

```
10 REM BMX II BOTH SIDES BY RICH
20 CLEAR 24319
30 FOR N=23296 TO 23328
40 READ A:POKE N,A:NEXT N
50 RANDOMIZE USR 23296
60 DATA 221,33,0,95,17,0,1
70 DATA 62,255,55,205,86,5
80 DATA 48,241,33,23,91,34
90 DATA 119,95,195,0,95,33
100 DATA 33,0,201,34,91,125
110 DATA 195,0,96
```

TRAILBLAZER - Infinite time and jumps

Original version

```
10 REM TRAILBLAZER GREMLIN BY RICH
20 LOAD "" CODE
30 POKE 60027,43
40 POKE 60028,235
50 FOR N=60203 TO 1E9
60 READ A:IF A<>999 THEN POKE
N,A:NEXT N
70 RANDOMIZE USR 60000
80 DATA 175,50,83,136: REM TIME
90 DATA 175,50,242,138: REM JUMPS
100 DATA 195,8,132,999:REM END
MARKER
```

Budget Rerelease

```
10 REM TRAILBLAZER MASTERTRONIC
BY RICH
20 FOR N=23296 TO 1E9
30 READ A:IF A<>999 THEN POKE
N,A:NEXT N
40 RANDOMIZE USR 23296
50 DATA 221,33,203,92,17
60 DATA 163,0,62,255,55,205
70 DATA 86,5,48,241,33,24,91
80 DATA 34,254,92,195,222,92
90 DATA 175,50,83,136:REM TIME
100 DATA 175,50,242,138:REM JUMPS
110 DATA 195,8,132,999:REM END
MARKER
```

BUGGY BOY (Budget re-release) - Infinite time

```
10 REM BUGGY BOY BY RICH
20 LOAD "" CODE:POKE 63537,255
30 FOR N=65280 TO 65501
40 READ A:POKE N,A:NEXT N
50 RANDOMIZE USR 63488
60 DATA 62,24,50,221,131
70 DATA 195,0,128,84,85
80 DATA 82,66,79,32,83,85
90 DATA 67,75,83,33,33,33
```

SPACE 7 - Infinite lives

```
10 REM SPACE 7 BY RICH
20 CLEAR 24514:LOAD "" CODE
30 POKE 65226,0:POKE 65227,91
40 FOR N=23296 TO 23313
50 READ A:POKE N,A:NEXT N
60 RANDOMIZE USR 65156
70 DATA 33,9,91,34,252,97
80 DATA 195,184,97,33,180
90 DATA 196,34,177,196
100 DATA 195,0,215
```

TECHNICIAN TED - Megahack

(WARNING: Don't try and walk to places which you normally can't get to, otherwise strange things happen.)

```
10 REM CHIP FACTORY BY RICH
20 FOR N=23296 TO 1E9
30 READ A:IF A<>999 THEN POKE
N,A:NEXT N
40 RANDOMIZE USR 23296
50 DATA 221,33,203,92,17,224
60 DATA 2,62,255,55,205,86,5
70 DATA 48,241,62,195,50,146
80 DATA 95,33,29,91,34,147,95
90 DATA 195,21,95,62,201,50
100 DATA 146,95,33,33,0,34,147
110 DATA 95,62,195,50,195,131
120 DATA 33,55,91,34,196,131,33
130 DATA 107,5,201,62,195,50,90
140 DATA 140,33,72,91,34,91,140
150 DATA 33,189,77,195,67,140
160 DATA 33,24,81,34,178,172:REM
LIVES
170 DATA 175,50,114,171:REM TIME
180 DATA 62,10,50,112,186:REM
IMMUNITY
190 DATA 175,50,95,186:REM WALK
THRU WALLS
200 DATA 195,101,170,999:REM END
MARKER
```

SPLIT PERSONALITIES - Infinite lives

```
10 REM SPLIT PERSONALITIES BY RICH
20 FOR N=65408 TO 65451
30 READ A:POKE N,A:NEXT N
40 RANDOMIZE USR 65408
50 DATA 243,49,255,255,221,33
60 DATA 25,160,17,223,2,62,255
70 DATA 55,205,86,5,48,241,205
80 DATA 126,162,221,33,0,64,17
90 DATA 128,191,62,199,55,205
100 DATA 147,161,33,63,2,34
110 DATA 125,212,195,170,209
```

TOOBIN' - Infinite credits

```
10 REM TOOBIN' BY RICH
20 FOR N-24480 TO 24512
30 READ A:POKE N,A:NEXT N
40 RANDOMIZE USR 24480
50 DATA 221,33,203,92,17
60 DATA 156,1,62,255,55,205
70 DATA 86,5,48,241,33,184
80 DATA 95,34,43,94,195,217
90 DATA 93,33,0,0,34,24
100 DATA 241,195,0,120
```

END

Sadly, that's all I've got time to write for this issue. Don't despair, because there'll be more hacks and cracks next time.

Meanwhile, why not write some POKEs yourself, and I'll do my very best to print them.

CHIPSHOP

Compiled by David Ledbury

Another issue is upon us once again, and with it brings yet another journey into the technical world with Chipshop. Due to this issue's features, we are only mainly concentrating on the next section of Daniel Canon's Machine Code Tutorial series, although all the usual favourites will be back next time.
Don't forget, if you've missed any issues, then we can supply copies of back issues for a resonable fee! Just write to the usual address for more details.

However, for those of you still working in BASIC - whether it be BetaBASIC on the Spectrum (Available from BetaSoft - address hopefully somewhere in this issue) or in SAM BASIC - we are currently hoping to get permission to use program listings from Doctor Andy Wright's BetaBASIC Newsletters, which should be quite interesting! More about this when we've got it all finalised!

But for now, it's back to Daniel ....

CODE BREAKER by Daniel Cannon

Reading the keyboard: First a few explanations (as always). 50 times a second, the ULA (or ASIC for SAM) inside your computer tells the processor to interupt. At this point, whatever the processor is doing, a RST 56 is done. At address 56 is a routine which tells the computer to read the keyboard, update the timer (a system variable at addresses 23672 to 23674), and (if you have a SAM) a few other things. At the end of the interupt routine there is a RET instruction which returns back to the program interupted, as if nothing happened. The upshot of all this is that we can be sure that the computer will store the result of any keyscan if it takes the trouble to read the keyboard 50 times a second.

In the next few programs which detect keypresses you must quit the program by holding down Enter (or Return) to display the "Scroll?" message, then press N. The computer will report an error to say that you didn't want to scroll, and then return back to BASIC. Can you find a better way, say by pressing a certain key, to quit??? Try the CP instruction.

First the Spectrum. At address 23611 is a system variable called FLAGS. Bit 5 is used to check if a key has been pressed (bit 5 set) or not (bit 5 unset). Unfortunatly, other bits in the same system variable are used to store other information, so you have to find a way of reading this bit whilst ignoring other bits. This is where the BIT command comes in. First we point HL to the address with the bit we want to read, and use BIT 5,(HL). The processor will check bit 5 of the address pointed to by HL, and return either Z (reset) or NZ (set). We can then act on this information. You can check all the BITs (from 0 to 7) and most registers (A, B, C, D, E, H, L) as well as (HL).

If the answer is zero (reset) then there has been no key press, so we must wait for a keypress by jumping back. If there has been a keypress then we read it's code at address 23560.

Next we must say that we have read our keyboard, and now we want the computer to take notice of the next keypress. This is done by resetting bit 5, to say that now there is no keypress (it sounds strange, but try omitting this instruction to see what happens). RES stands for reset and it resets a bit, it can use the same registers as the BIT command. SET also understands the same registers, and you can have a guess as to what this one does.
Try program 1 to see this in action:

```
010 ;PROGRAM 1: Spectrum keyboard
read.
020 ;Start 32768, end 32787, length
20.
030         ORG  32768
040 ;Use main screen (see part 4).
050         LD   A,2
060         CALL 5633
070 ;Point HL to FLAGS
080         LD   HL,23611
090 ;Check bit 5. If zero, then jump
back. This looks like
100 ;it would loop forever but
remember that the interupts
110 ;are being used whilst this
program is running.
120  loop:BIT  5,(HL)
130         JR   Z,loop
140 ;Get the ASCII code of the key
pressed into A.
150         LD   A,(23560)
160 ;Say 'key not pressed' any more.
170         RES  5,(HL)
180 ;Print the character.
190         RST  16
200 ;Loop back.
210         JR   loop
```

Now the SAM, which is a far easier beast to work with. If you have a version 3 technical manual then you can see the routines I'm using on page 41. If you haven't then get one!

To read a key you should use CALL £169. The sub routine returns with the zero flag set to Z if no key was pressed, or NZ and the code of the key pressed in the A register. Look at program 2 for an example of how to use this, and compare it to program 1.

```
010 ;PROGRAM 2: SAM keyboard read
using CALL £0169.
020 ;Start 32768, end 32780, length
13.
030         ORG  32768
040 ;Use main screen.
050         LD   A,2
060         CALL £0112
070 ;Scan the keyboard. If Z, no key
pressed, so jump back.
080  loop:CALL £0169
090         JR   Z,loop
100 ;If NZ then the ASCII code of the
key pressed is in A.
110 ;Print the character.
120         RST  16
130 ;Loop back.
140         JR   loop
```

Or, you can get the computer to wait for a keypress, by using CALL £16C. When a key has been pressed the sub routine returns with the code in the A register (so you don't have to worry about checking if a key is pressed or not). See program 3, and compare it to 2 and 1. Here the computer takes care of the delay and keyboard repeat automatically.

```
010 ;PROGRAM 3: SAM keyboard read
using CALL £016C.
020 ;Start 32768, end 32780, length
13.
030         ORG  32768
040 ;Use main screen.
050         LD   A,2
060         CALL £0112
070 ;Scan the keyboard, waiting for a
keypress if needed.
080  loop:CALL £016C
090         JR   Z,loop
100 ;The ASCII code of the key
pressed is in A. Print it.
110         RST  16
120 ;Loop back.
```

```
130         JR    loop
```

Or (!), you can use the Spectrum method. This has the advantage of using the keyboard buffer (which you don't find on a Spectrum). As an example, load up something like SC_Assembler, return to BASIC, and edit one of the really long lines. Press the up cursor to move to the end of the line, then type something really fast, and take your hands off the keyboard. You can see that the computer catches up with you. This is keyboard buffering: The computer stores up the keypresses and waits for your program to read them out as soon as possible, useful if your program is fairly slow (like the SAM editor when it has half a screen to handle). Try program 4 to see this in action. If you want to clear the buffer use CALL £166 in your program.

```
010 ;PROGRAM 4: SAM keyboard read
using Spectrum method.
020 ;Start 32768, end 32787, length
20.
030         ORG   32768
040 ;Use main screen:
050         LD    A,2
060         CALL  £0112
070 ;Point HL to FLAGS.
080         LD    HL,23611
090 ;Check bit 5. If zero, then jump
back. Remember that
100 ;interupts are running.
110 loop:BIT  5,(HL)
120         JR    Z,loop
130 ;Get the ASCII code of the key
pressed into A.
140         LD    A,(23560)
150 ;Say 'key not pressed' any more.
160         RES   5,(HL)
170 ;Print the character.
180         RST   16
190 ;Loop back.
200         JR    loop
```

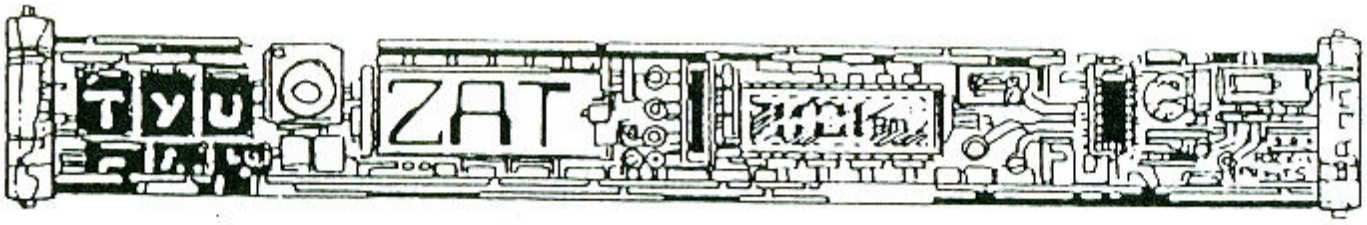
Fine, but this is just like the INKEY$ instruction. What machine code games are famed for is their ability to read more than one key at once. First we are going to return back to ports. We've seen the border, sound, and tape ports. Now we want to read the keyboard, which is done by reading (you guessed it) the keyboard port.

```
KEYBORD port 254. Controls keyboard
and tape input.

0-4: Keyboard block
5  : Unused on Spectrum, light pen
input on SAM.
6  : Tape input (ear).
7  : Unused on Spectrum, screen off
indicator on SAM (not XMEM as
described in
     the technical manual on page
21).
```

Port 254 is used here (again). Although we are using the same port number as the border and sound, the difference is that we are reading, not writing. Why wasn't the keyboard given it's own port number to make things nice and clear? It usually takes a different circuit to check for each port number, so if you cut down on the circuits you cut down the price, and simplify things.

How do you cram the entire keyboard (40 keys on the Spectrum and 72 on SAM) into just the 5 bits the port allows us to use. The answer is you don't. You split the keyboard into groups of five keys (called blocks), which just leaves us the problem of telling the computer which block we want to use.

Here the BC register comes in handy. The C register is loaded with the keyboard port number (254), and the B register holds the block number. Each



block is given it's own bit, so we are allowed 8 blocks (8 bits).

Block number	4	3	2	1	0
Z11111110	V	C	X	Z	CAP
Z11111101	G	F	D	S	A
Z11111011	T	R	E	W	Q
Z11110111	5	4	3	2	1
Z11101111	6	7	8	9	0
Z11011111	Y	U	I	O	P
Z10111111	H	J	K	L	ENTR
Z01111111	B	N	M	SYM	SPC

You may be able to see some kind of pattern. If you read the description in the Spectrum manual (chapter on IN and OUT), it doesn't make a lot of sense for anybody who doesn't have a 48K rubber key Spectrum, and SAM owners don't get any description, which is why I typed the whole lot out (at great expense).

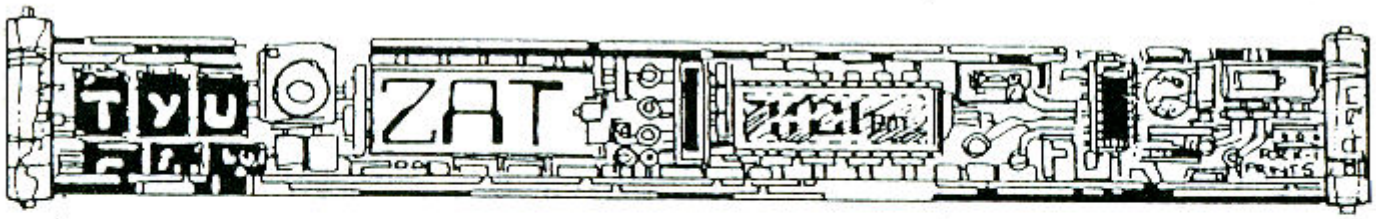
And any Spectrum owner who has a + or above will probably be puzzled at the lack of the special control keys which are on the left hand side. The answer is there are none! They are simply a combination of SHIFT and a number key, which is why many games with redefine keys treat them as one or the other. But SAM control keys are not combinations of SHIFT and number keys.

Meanwhile SAM owners are missing another 32 keys! The keys I've just described are the main keys you need - the other keys are accessed in a slightly different way which I won't go into here (because space is limited).

To tell the computer which block we need to read we must use port numbers which are greater than 255. This means that the simple OUT (port),A or IN A,(port) will not work, because this command can only deal with single byte port numbers. Instead the IN (C),A command is used. This reads the port which is currently in the BC register (authough it looks like just the C register from the way the command is worded, but not to worry).

It is at this point I have to explain how register pairs work. You know that you can join two 8 bit registers together to allow you to form 16 bit numbers. So clearly one of the paired registers takes the part of bits 0 to 7, and the other of the paired registers takes the part of bits 8 to 15. Which one takes which part though? The processor decides that for us - the first register in the pair (eg. B in the BC register) takes the part of the 'high' bits, and the last register in the pair (C in this case) takes the part of the 'low' bits. This means that the value in the B register is shifted up the 16 bit number by 8 bits. If we want to shift bits around the byte we can multiply and devide. So to shift up by 8 bits we multiply by 2 ↑ 8 = 256, and to shift down we devide by 256. So if you did a LD B,1 : LD C,4 and found out the value in the BC register it would be 1 * 256 + 4 = 260. If you did LD BC,54321 then you would have 54321 devided by 256 which is 212, and the remainder in the C register which is 49. I hope it makes sense. I'm sorry, but that is the clearest way I can think of to explain about how register pairs store numbers (which is why I put it off in the first place!).

Anyway, the computer will expect the keyboard port number in the low



register and the block number in the high register. This can be done with LD C,254 and LD B,block number. Once the registers are set up we can use IN A,(C) to read the port. The keyboard is read in the A register. Ignore bits 5 to 7 (these arn't important), and concentrate on bits 0 to 4.

These bits are set if the key isn't pressed, and reset if they are pressed, the reverse of what you may expect. You can then test them with the BIT command to check for a specific key and act on the result. See program 5.

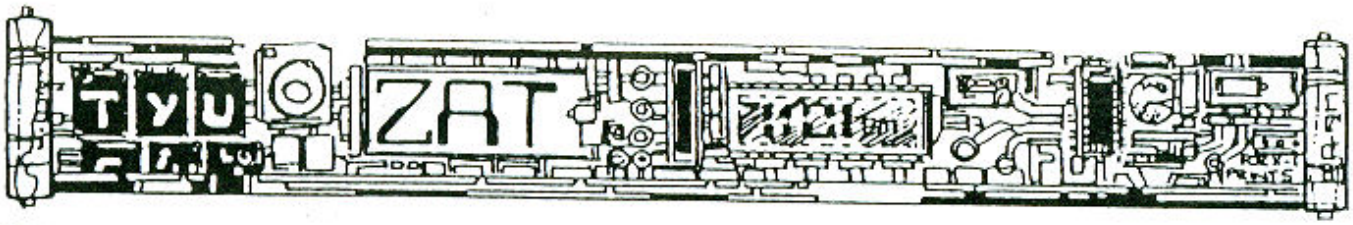
```
010 ;PROGRAM 5: Keyboard read using keyboard port. This
020 ;waits until keys B, Y, and E are held down together.
030 ;Start 32768, end 32794, length 27.
040         ORG  32768
050 ;C holds keyboard port number.
060         LD   C,254
070 ;B holds the number of the block with key B in.
080  loop:LD   B,%01111111
090 ;Read that block into the A register.
100         IN   A,(C)
110 ;If BIT 4 of A is SET then B is not pressed, so loop
120 ;until it is.
130         BIT  4,A
140         JR   NZ,loop
150 ;Now do the same with the Y key.

160         LD   B,%11011111
170         IN   A,(C)
180         BIT  4,A
190         JR   NZ,loop
200 ;Now the same with the E key.
210         LD   B,%11111011
220         IN   A,(C)
230         BIT  2,A
240         JR   NZ,loop
250 ;If the program has got to here then B, Y, and E must
260 ;be held down. So return.
270         RET
```

You can read more than one block at once. Say you wish to use the entire 'bottom row' (CAPS, Z, X, C, V, B, N, M, SYMBOL, SPACE). You can do this by using LD B,%01111110. Both blocks are read, and the keyboard bits are merged together. So, if you got an answer of %11110, it could be SPACE or CAPS (look on the rightmost column and the two rows of %01111111 and %11111110).

You can read the entire keyboard by LD B,0. One main use for this is to wait for any key to be pressed. See program 6. Here we use the AND instruction which filters out unwanted bits, and the CPL instruction which 'flips' the bits (sets all reset bits and resets all set bits). It's not really important how this routine works (yet!) but just remember it all the same.

```
010 ;PROGRAM 6: Wait for any key to be pressed.
020 ;Start 32768, end 32779, length 12.
030         ORG  32768
040         LD   C,254
050 ;All keyboard.
060         LD   B,0
070 ;Read key into A.
080  loop:IN   A,(C)
090 ;Set all reset bits and reset all set bits:
100         CPL
110 ;Ignore bits 5 to 7. If no key pressed then all of bits
120 ;0 to 4 will be reset.
130         AND  %00011111
140         JR   Z,loop
150         RET
160 ;Remember that you are going to have to tap the ENTER
170 ;key very lightly after the CALL command for this to
180 ;work, otherwise it will return straight away.
```

Now there is a problem. In this case it is to do with the design of the



computer, and there is nothing you can do about it. The keys pressed in one block may affect the result from the keys of another block, which can be a problem with many two player games. Have a look at program 7.

```
10 REM PROGRAM 7: see the effect
of keypresses on ports.
20 PRINT AT 0,0;: FOR a=0 TO 7: LET
port=254+257*(255-2↑a): PRINT port;
TAB 6; IN port: NEXT a: GO TO 20
```

See if you can write a program to detect Q, A, O, P, and M or SPACE as fire, and poke addresses in the memory which can be read by a BASIC program, so you can have a BASIC game which reads these addresses and allows you to detect more than one key at once. I'll give possible solutions to this and the quit key problem next time. Bye.

Once again, I'll just remind you about the fact that the "hash" sign always comes out of our DTP as a £ sign - so watch out for this little quirk when typing in listings!

Right, I'll now hand you over to the capable hands of Steven Kemp, with another:

Program Box by Steven Kemp

Serious Reading: System Variables 6

This issue, there's a short piece about the "MODE" System Variable for you to read about!

MODE 23617

This variable tells the computer which cursor to print, although it must be poked from within a program, or before an INPUT statement to have any effect, as it is reset while in BASIC's editor.

Most of the acceptable values can't be used, as they cause undesireable effects, eg poking with a number between 4 and 129 will lock you in Graphics mode.

The following program shows the general use:

.

```
10 FOR f=1 TO 4: READ a
20 POKE 23617,a
30 INPUT "Type something in ..."'LINE
a$
40 NEXT f
50 DATA 252,222,158,164
```

Of course some experimentation is necessary to choose your own values. Just poke in all the numbers from 130-255 in a loop, inputting as you go.

Thank you Steven. Next issue, we'll have a very useful program from Steven, to help you investigate the contents of the Z80 registers.

What I would like to hear from all Spectrum owning readers, is details of any drive systems owned. Why? Well, there is a good possibility that we may be releasing some listings that we have printed in the past for the Spectrum - and some we have not used yet - on a Spectrum compilation disk. So, yet me know via ZAT, and we'll see if it's worth it.

Until next time, D.L.

Spectrum Hacking and tape loading

Before I begin, neither I or this magazine promotes hacking for financial gain and pirate copying. It is both immoral and illegal and these kind of hackers give programmers a bad name, raise software prices and indirectly kill support for a particular machine. The gain of harmless hacking is only to gain knowledge of how programs are made and how to disassemble the authors method of manufacture. The old addage: "Cheats never prosper" could also include hacking. I must admit that the feeling you get when you make a POKE or crack a seemingly uncrackable loader is nothing short of ecstatic, but in the long run it puts you off the game forever. Its not worth playing a long adventure if you've solved it before, is it?

In this article, I'm not going to do a Jon North and start a series featured in YS (which incidentally got too difficult and boring for new users, but if you're reading Jon, it was a first class series and I'm sorry YS cut it. You could always get a job with ZAT or Alchnews!). Instead, I'll give a quick rundown of tools of the trade and move onto a landmark of Sinclair computing: The Spectrum Loading System.

Modern hackers start out by buying a multiface, which gives you total access to every byte of RAM, whether you have 48 or 128. Multifaces also come with an extra 8k of RAM which allows extra hacking software to be installed. These are LIFEGUARD: An infinite lives finder and GENIE: A disassembler. Any owner with a multiface usually makes no use of the extra 8k memory which is sadly wasted as it makes your computer either 56k or 136k. Look out in future issues for an article called "More from your Multiface" which can also be found in Alchnews.

Other programs which come in useful are a DISASSEMBLER: a program which in effect "disassembles" the code into Z80 machine language, text or pictures, so you can find text or the line which determines how many lives you start with. Sadly, the more features a disassembler holds, the more memory it takes, and seeing as now a days new games take up every scrap of RAM, you must lose some program. The trick is to first load the disassembler into the lower half of RAM, say 30000 and disassemble 40000 to the end, then reload the game and put the assembler at 50000 and disassemble 30000 to 40000. A little messy I agree, but its the only way. It's all very well saying "load the game and then load a disassembler" but the biggest problem is how to break into a program. Multiface owners can use their EXIT function or 48 owners can get a piece of code which is installed into the printer buffer (23296-23551) which allows a new BREAK key to be defined.

Another problem is that new games take up all the available memory, using from 23552 to 32768 which should be unused to allow you to return to BASIC. So if this is occupied, the computer will still crash! There is one way to get into basic and just lose a little memory. The way is to alter a system variable to make the spectrum perform a NEW command which guarantees exit to BASIC, but if you haven't CLEARed your code (protected it from accidenatal NEWs), then all is lost. So, first you must find a way to POKE 23730,168 and 23731, 97. Then you must alter the program counter (PC) to 4535 or 11b7 Hex. Now, the computer will reset to basic leaving all code from 25000 intact, losing only just over 1k! Depending on support for a section like this, I may continue, giving more support for new pokers out there! Write to me or the editor now and say what you think!

Spectrum Tape Loading System

The flagship of loading systems on all 8 bit machines must be the Spectrum system. The way it allows you to hear the tones and the bars which appear on screen when loading tell you an encyclopedia full of information!

Standard Loaders

This is usually the Wheeeee- Blip (Pause) Wheeeee- chugga chugga etc! This is the system the Basic load and save uses. In fact, when you type save or load, you are not loading in one program but two!

The short "wheeeee- Blip" is a 17 byte program header which tells the spectrum what to expect next- how long the next piece of data is, where it has to go, what type it is, how long it is and finally a file name. These are simple to crack and you can pick up a tape header reader from anywhere to find what you are loading in.

Headerless Loader

This is the same as above, but doesn't feature the "Wheeeee- Blip" part. This system is a little more complex as it won't load in by a standard Basic LOAD"" command. It needs all the information set up before hand. It also doesn't have a filename which makes finding a particular part difficult!

Here is a piece of machine code which would load in a screen picture without a header. You can try this by finding a screen picture from a game by typing LOAD"" and loading in the first part. Then when it does the "Wheeee- Blip" for the screen, stop the tape AFTER the "Wheee- Blip" which shows the filename. Now reset the computer and type or POKE this into address

400000:

ASSEMBLER	HEX	DECIMAL
ORG 40000		
DI	F3	243
LD IX,16384	DD 21 00 40	221 033 000 064
LD DE,06912	11 00 1B	017 000 027
XOR A	AF	175
SCF	37	055
CALL 1366	CD 56 05	205 086 005
EI	FB	251
RET	C9	201

Now, RAND USR 40000 and play the tape. The code should miraculously be accepted and load the screen. Quite a few games use this method to stop standard loaders from being put through a header reader and being copied. But the way you can find where its going is to look in the basic loader. You will usually find a few data statements POKEing numbers into addresses or a short standard piece of code before all the headerless code. Disassemble the address to where this data is going (usually the RAND address or the CLEAR address+1 and note down the times LD IX is used and the address and the same with LD DE. LD IX is used to store the start address of where to put the code and LD DE is used for the length. SCF means load in the code and not verify it. LD A,FF or LD A,255 or XOR A means that the headerless file is code and not basic and CALL 0556 Hex or CALL 1336 means call the piece of code in ROM to load it all in.

Some games may have this 'program' in twice: Once to load in the screen and once for the code. To check, the screen will be LD IX,16384 and LD DE,6912. Some authors cheat and load the screen to high memory (like 40000) and then move it down to 16384 later. You'll usually know when you have a screen because DE is usually set to 6912. After all the LDs and CALLs, you'll get a JP address. This is like a RAND USR, and starts the game off. If you alter the CALL to a RET (CD TO C9 or 205 to 201), it will return to basic! Then you can perform the RAND USR xxxxx after maybe looking around with a disassembler or putting pokes in!

Turboloads

These are the same as above but go faster. The code to load them in isn't in ROM, so has to be in RAM, usually high up. The principle is the same as above though: a piece of code with a header is loaded in and RAND USRed. IX and DE are still used, but insted of CALL 0556 or CALL 1366, it's usually much higher to the same piece of code in ROM but with some variables altered to read in the data much faster. If you've disassembled the spectrum loading routines at 1366 decimal, you can compare them with the turbo code higher up in RAM.

Firebird Loader

In my opinion, the most reliable loader

ever written for RAM!
The whole operation is to load in a short piece of code and repeat the process many times. It also includes a test, so if it didn't load in properly, it tells you to rewind and do it again. Even though the little blocks are headerless, they are cleverly numbered. The only sad part about this is that it takes absolutely ages to get a game loaded in!

Well, thats about all the different loaders around today. Beeploads and Speedlock loaders are just variants of turboloads. There is a snail-load around which I created in 1990 which is like a turbo loader, but the opposite which loads data in really slowly, rather than fast! It's so slow, it would take about 35 minutes to load in a 128k game, so imagine a 512k SAM game: 2 hours 20 minutes! Sheesh, its no wonder people turn to disc drives!

So until next time, or sooner if you want to drop me a line, bye!
Alchnews is available FREE so long as you supply a blank C90 and SAE. Please enclose an SAE for a query. The address is ALCHEMIST RESEARCH, 62 Tithe Barn Lane, Woodhouse, Sheffield S13 7LN

Thank you for that interesting, and useful article Andy.
Now it's time to got over to Daniel Cannon, for a review of the long-awaited SAM music making program - The Sound Machine.

How many times have you tried to write your own music for your SAM Coupe after listening to something like a Masters of Magic music demo? How many times have you failed? Probably your answer will be the same as mine - every time. So as soon as it was released ordered a copy of The Sound Machine from SAMCO. Three months later and I finally received it - which is why this review is slightly late. Never mind though. The package includes a program disc, a blank disc to save your music on (nice touch), and 70 pages of DTP produced instruction book.

The manual goes through how to use this program right from the beginning in great detail. First it explains how to load up the demo tunes, and how to modify them. Next you enter your own tune, then it gives you the start of a well known tune and you have to finish it off. Finally it tells you how to read sheet music. It's well written and it explains all the things you'll need to know.

Upon loading you are presented with a picture of SAM being extreamly funky with a guitar-synth and an icon bar across the top. Using either mouse or QAOPM keys to click on the bar will give you 3 options - the music editor, the waveform generator, or reset the computer.

Because I have no mouse I had to resort to keyboard. As you have probably guessed, holding down right, for instance, will move the pointer to the right. On Flash the pointer will gradually increase in speed as you hold the key down, so it is a fairly quick process to cross from one side of the screen to t' other. With SM things are different - the pointer crawls across the screen at a fixed rate, which can be slightly irritating. However I'm a fairly impatient kind of person - you might not find this a problem.

Anyway, clicking on the note icon will load the music editor. First you will be presented with a few disc drive commands (load, save, dir, etc...). Clicking on the icon bar again will put you into the music editor proper. You'll see a large proportion of the screen fill up with a grid. The y axis of the grid is used to measure the pitch of the notes, and the x axis is used to measure time. To the left of the grid is a keyboard which you can look up your notes on so that you know which y coordinate in the grid produces which note. Below the grid is a cluster of icons. Below this is a full 7 octave keyboard. "Lights" appear on the keys as songs are being played to show you which notes are being used, a la Manic Miner (Speccy version) or Firefly.

Using the grid you click on where you would like a note to appear and it appears. The height of the note on the grid determines it's pitch. As the whole range of octaves won't fit onto the screen at once, you can scroll the grid up and down by clicking the octave change icons. The x position determines how far into the tune the note will be played. You can scroll the grid left and right as the length

of your song increases. You can also ask for devisions to be placed along the grid at regular intervals which represent 3 time (waltz type music) or 4 time bars so that you don't loose your place. It's all nice and easy to use (if complicated to explain), but a little slow if you are in a hurry.

Each note can be played using one of 10 waveforms (instruments), and all 6 channels can be used at the same time. One problem is that you cannot play two notes straight after each other which are of the same pitch in the same channel. So if you wanted Da Da Da Daaa, you would end up with Daaaaaaa. This problem can only be solved by switching channels between each note played which is a bit of a pain.

You can copy blocks of notes around the tune, store patterns of notes which can be repeated later at different pitches (called macros), play sections of the song using something akin to the controls you would find on a tape deck, and test your creation by muting out channels to see if one channel has the beat wrong for instance.

The waveform editor allows you to create the different types of sounds you want in your tunes. For example, you may want a piano and a drum in your tune. By altering the amplitude (volume) and frequency (pitch) of each note played slightly you can do this. To make a piano Like sound you would set the amplitude to start off loud and die down slowly. You could change the pitch slightly as the note finishes. A drum sound would start of louder than the piano and die down quickly, and it would use white noise (a sound like an untuned radio) at a low pitch.

The big but about the waveform editor is the length of the waveforms you are allowed to create. Waves can only last for around half a second - no more. This tends to ruin any chances of things like snare drums and guitars which last longer than this. The other prob is that you are only allowed 10 waves per tune - not a lot if you think about it.

Full instructions are given so that you can use this music in BASIC or Machine Code. Special provision is given in case you want to play your own sound effects whilst the music is playing - you can mute out channels and replace them with your own in game sound effects. Each tune requires 4 pages of RAM however, which can put a crimp on your machine code programming if you want to fit it in a 256K computer. However I've heard that there's a song compressor out on PD already.

In reviewing this program, I think that I have to make comparisons between this and Soundtracker (for the Amiga or Archimedes), because, basically, I'm a Soundtracker nut. Soundtracker is a similar program for these computers which doesn't look as pretty and isn't as user friendly (not by a long way). However, it has a method of entering notes which is fairly fast (you type the notes in on the keyboard), and it allows waveforms which can last up to 10 seconds or more.

I don't know what to make of this. Yes it is a very good program, yes you will have fun using it, yes it is very useful. But maybe I am too used to Soundtracker (and too biased?) - I find the process of entering notes a bit slow (I would prefer to type them out on the keyboard) and I think the limitation on the length of the waveforms is too much to make them really useful. However this is still a good program which you will like. I'd say buy it, despite these little quirks.

Ratings

Usefulness 90
Presentation 90
Compatability SAM
Overall 80

Note: We've just heard that there may be ANOTHER music package available soon for SAM. No details yet, except that it sounds (groan!) as though it should be something special!

That's it for this edition. Next time, we hope to have a "gaze" at Star Atlas, KE-Disk, and maybe a look at one of the 2 new Arcade Development packages for SAM. Additionally, we may take a look at Hisoft BASIC - the excellant Compiler for the Spectrum.
Until then .....

SPLIT *SCREENS*

by DAVID ADDEY

Hooray! Split Screens returns! After the success (I hope) of the first one, I'm back for another and this time I'm dealing with 3D isometric games. What? I hear you cry. Don't you ever listen? 3D isometric games of course. Still confused? Let's take a look in the dictionary.

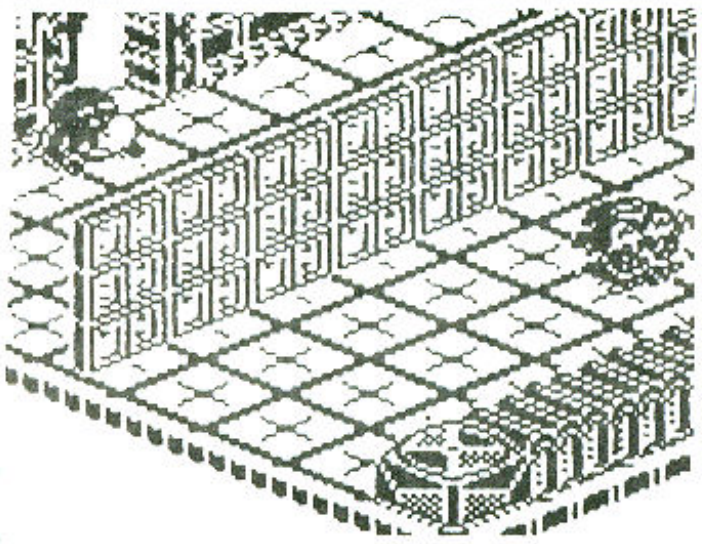
3D ISOMETRIC GAMES *(Triplicus Dimensionus Isometrica)*

Hmm, hard to describe really. They sort of look as though they are drawn in perspective, but they aren't. You usually have to control a "cute" character of some form, who moves around in a "cute" sort of way.

It's best explained by a few examples. Rogue Trooper (a popular futuristic comic strip character from 2000 A.D. comics). Batman (the first game in the trilogy). Sweevo's World. Hydrofool. Movie, and many more besides. Even these days they prove as popular as ever.

So there you have it. It's good that a format that's been around for so long is still being done so well. For example, *Gauntlet 3*, the last in the classic series. In fact that's a very good example, so good that I'll use it in the comparison. As for an older isometric game, well, there's only one choice really - it has to be *Head Over Heels*. So, the games are on the table, the stakes are high (the dinner is in the oven), how do they compare?

Firstly, Head Over Heels. The game was written for the Spectrum by Jon Ritman and Bernie Drummond. Yes, those names are familiar, they're the same people who brought us the original Batman game, as well as Match Day, and Match Day 2. After the success of Batman, the lads amazingly produced a game that was even better, by using the excellent idea of letting you control two characters, rather than one. The characters names? Why Mr Head and Mr Heels of course. The twist was that the two chums (yes, it was a cutie game) had been separated by the evil Blacktooth and locked away for good. Their task? To escape, meet up, liberate 4 planets, capture Blacktooth's crown and escape to the planet Freedom, where they come from.



Head Over Heels

Easy? I think not. After buying the game I spent about 2 hours a night playing it, for the next 2 weeks (longer on weekends). This game ruined my social life, destroyed my sanity, made me pull out my hair in frustration, but I completed it. There's enough puzzles to keep even a Mensa member like myself going for ages.

Oh, and back to that twist, there's the benefit to be gained from "joining" the two pals up. You see, Head can jump a long way, and change direction in mid-air, but he's slooooooow. Heels is speedy enough, but pretty crap in the jumping department. Time is needed to master controlling the two of them, but that's not all you need to do, for when the happy chappies get together, their powers combine. To put it nicely, Head sits on Heel's head, and the two of them "join together as one". This makes all

sorts of tasks a whole lot easier, and so on

To sum it up undoubtedly the best ever game for the Spectrum More challenging than something very challenging indeed, and more addictive than Colombia Buy! Buy! Buy!

But wait! This isn't a review, it's a comparison! Onto Gauntlet 3.

Now, if you haven't heard of the Gauntlet series of games then you don't actually exist. It's as simple as that After the popularity of the two strangely shaped arcade machines (called Gauntlet and Gauntlet 2 respectively), computer versions were inevitable, and equally popular.

They did, however, do about everything do-able with the overhead maze format so when Gauntlet 3 came along, it kicked up a bit of a ruckus with it's usage of the 3D isometric game format

The game is basically similar to the originals, but nearly all the aspects have been taken further There's the extra dimension for a start Also you now have eight characters to choose from, rather than the original four (new arrivals are Neptune, Petras the Rockman (and Blue Peter dog), Dracolis the Lizardman, and Blizzard the Imaginatively-named Iceman, and a plot.

Surely not a plot? Yes, a plot Capricorn, the Lord of Decay, is causing a fair bit of trouble on the island of Capra it would seem, so someone has to do something about it You'll never guess who Yes, it's you, and possibly a buddy if you're lucky enough to have any friends

The main difference between the two games is now about to crop up at last In HOH, you're puzzle solving most of the time, but whereas in G3 is much more of your traditional slash at everything type of game Also G3, though made up of 8 different levels, scrolls freely in 8 different directions, whereas HOH is made up of lots of interlocking rooms

Because of these points, the sprites in G3 are much bigger than those in HOH, but that's not a de merit on H O H's part Actually, now that I come to look at it, they haven't really got much in common at all, except for the 3D aspect Looks like I'm fired

Well a quick sum up Both games make good use of the 3D isometric technique in different ways, they don't have a lot in common and so to salvage my pride I'll say that this was all planned to show just what a variety of games there are of this type Head Over Heels certainly doesn't show its age, and neither does Gauntlet 3, because it isn't very old Thank you

DA

The Manic Miner Competition!

With the release of the new version of the classic game, Manic Miner, on the Sam., here's a simple competition to win a free copy of this game autographed by its programmer, and original Tech Editor of 2A1, Matthew Holt The first prize winner will win the game and a second prize winner will win 5 blank discs

To win either of these prizes, just answer these mulit-answer questions

1) Who wrote the original Spectrum version of Manic Miner?
a) Matthew Smith. b) Matthew Holt. c) Matthew Smith.

2) Which of these "screen titles" from the Spectrum version was never used?
a) The Menagerie. b) Return of the Alien Kong Beast. c) Return of the Jedi.

3) Which of these 3 games did the author of MMNOT write?
a) Manic Miner. b) Jet Set Willy. c) Jet Set Willy 2.

Send your answers on a postcard, or a sealed envelope to MANIC MINER COMPETITION, 103 CHILTERN GARDENS, DAWLEY, TELFORD SHROPSHIRE, TF4 2QJ

Entries sent in via this issue must be received by June 30th Winners announced