

# **ALCHNEWS**

**AND**

# **Z88 USER**

**ISSUE 37, SEPTEMBER 2001**



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**GAC**

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CLOSES**

**BOB BRENCHLEY  
UNCOVERED!**

**MORE ON +3 SOUND**

**A.R. JOINS  
EMUUNLIM.COM**

**NEW REALSPEC - BEST  
EVER EMULATION!**

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## CREDITS

### **BIG THANKS TO THE FOLLOWING CONTRIBUTORS:**

MICHAEL BRUHN for his great new nostalgic series  
*THE FOX* and MALC JENNINGS for the great on-line support  
RAMSOFT for bringing out the definitive Spectrum emulator  
JOHN CLEVELAND, NIC CHEESMAN and GARRY LANCASTER  
for their hints, tips and contributions with regard to Realspec.  
RAMSOFT, for Realspec!  
And to MICK, for everything he did for the magazine.

# EDITORIAL

The passing of our good friend Mick Harrop has come as an unbelievable shock to us all. He was, without question, a wonderful caring man who spent hours pursuing his love for all things Sinclair. He was a dependable guy you could rely on for anything. I've written a short piece about my friendship with him, on page 16.

Mick would have certainly loved the latest version of **REALSPEC**. It offers the most precise and thorough emulation of the Spectrum than ever before and it's all free. I'd long been a big fan of the emulator, as it was great for loading in the *TRD* disk images of all the Eastern European demos that continue to spring up on an almost weekly basis.

However, it was after an email from John Cleveland that rekindled my love for the emulator, and even my original Spectrum +3, when he told me about the 706k disk image support in the latest release and how he had converted some old Alchemist PD +3 utility disks to image files and was actually running them and even CP/M on the emulator that caught my eye. At the time I was working on re-launching Mick's PD web site with **emuunlim.com** and trying to consider a better solution than the old method of the old *Teledisk* compressed disk image format, when John provided me with the obvious solution.

Unfortunately, this has taken a back seat but do bear with me. In a few months I hope to have converted just about every +D disk that I have into image files for use on the emulator and uploaded to the new site. You can read all about my tinkering with Realspec and the fun I had getting my real +3 working again later in the magazine.

I'm also very lucky to have more material from John Cleveland, Nic Cheesman and Garry Lancaster, all related to *Realspec*. As I was telling the authors, Ramsoft; their program has done more for the Spectrum and emulating scene in just a few weeks than probably the last five years put together! There have been dozens of emails flying between us all, containing hints, tips and disk images!

The planned MB-02 special has taken a back seat for this issue. I didn't receive half as much information as I needed. As an editor it leaves me a little peeved, but as a potential customer puts me off completely, especially considering my email to the manufacturer went unanswered. My advice would be to stick with Realspec and experiment with these new machines under emulation and save your money!

Next issue is a CP/M special! We revive the precursor to DOS and show you everything you need to know to get started. *Andy*

# NEWS & VIEWS

## ALCHNEWS FREE AGAIN!

It's back in electronic form on our website! The snag is that it's in Adobe Acrobat PDF format - for PCs and MACs only though. All back issues are there and present issues are also uploaded at the same time. This will save us lots of printing and postage costs if you are willing to download it for free!

## DID CLOSES AFTER ALL

*This is hard, but I have to tell you all that I've decided to stop Desert Island Disks the Fanzine.*

*First of all because I've felt a bit tired of doing it lately, and I'm not 100% convinced of that CD idea I came up with, as a last solution to my printing problems. Someone warned me about that idea, and giving it some thoughts I realize that a Spectrum fanzine like DID loses its magic when not released on paper.*

*Besides that Milton Snook decided to stop doing Spectra*

*as he have a lot of personal business to take care of in the near future. I don't need to tell you that losing Milton's gifted pages would make the quality of DID drop a lot.*

*Therefore I've decided to stop while at the top. I hope you all understand.*

*I would like to thank everyone of you guys for all your huge help with DID in the past, and I'll try to stay active by writing articles for some of the remaining mags out there. That is of course if some of you editors want me to, I doubt it :-)*

*All readers with running subscriptions will get there money back as soon as possible.*

*So, what will I do now. Well, I want to concentrate on my website, which includes the Speccy Tour 2001 and another projects I'm planning to do.*

*Will DID ever rise again, I don't know. If so, then it will be on paper and in colour, any other way is no fun for me.*

*I'll stop here. Thank you.  
Bye.  
Michael Bruhn*

And the main emulators site at:

**WWW.EMUUNLIM.COM**

## **AR JOINS EMUUNLIM.COM**

We are pleased to announce the partnership with leading web presence EMULATORS UNLIMITED. The site, which contains the very latest in the world of emulating consoles to computers, has had over eight MILLION hits and gets about 15 to 20 thousand visits per day, will be hosting our web site and the following titles:

- \* Campbell Systems
- \* CCS
- \* Gremlin Graphics
- \* Lerm Software
- \* Psychadelic Hedgehog
- \* Vortex

The site gets regular coverage from leading magazine *PC ZONE* and will bring many old Spectrum games back into the fold!

The Gremlin Graphics section, *Gremlinworld*, can be found at:

**[http://gremlinworld.  
emuunlim.com/](http://gremlinworld.emuunlim.com/)**

## **REALSPEC EMULATOR UPDATED**

The undisputed king of the emulators is now, without a doubt, *Realspec*. The coders Ramsoft have taken Sinclair emulating to new heights with this latest version which boasts FULL DISK SUPPORT from the +3 and MGT Disciple or +D system - even UNIDOS!!!. Not only can you easily read and write to and from actual disks, but you can convert them to super fast image files for swift access. User J.R. Cleveland has taken advantage of this and even got Locomotive Software's CP/M running!

The list of machines emulated increases. All the old Sinclair range is there, including +2a and +3, Pentagon, Scorpion and the Didaktik Kompakt. Or how about even emulating Sintech's wonderful MB-02? They are all there (providing you have the ROMs for the latter two).

## WOS NEW LINK

Speaking of the World of Spectrum, they now have a URL, a much easier to remember:

**WWW.**

**WORLDOFSPECTRUM.ORG**

## BRENCHLEY BOUNCES BACK!

The last we heard of Bob Brenchley was when he did a disappearing act a few years ago, leaving many *FORMAT* subscribers in the lurch.

In August, a wealth of new information appeared from almost nowhere about the happenings of Brenchley. It's been reported that he underwent a liver / gall bladder operation and never successfully got over it. One can understand giving up *Format* for this, but why weren't the subscribers told? Why didn't they get their money back? Brenchley supposedly had a secretary called Jenny working for him, why did she not put people in the picture?

It seems Bob's new enterprise

is "*building PCs and doing web support*", according to Nev Young of the SAM mailing list.

He also appears to be a great lover of the newsgroups, rumoured to have posted over **9000** messages, many of them offensive and abusive.

I took a look at a couple by going to **google.com** and typing in "Bob Brenchley". The listings of newsgroup messages was enormous, even pictures of him on *singles* groups outings! Just taking a look at a few showed that Brenchley has upset many people with his postings and gained many enemies.

One source said: "*a lot of people both here and around the world that he has abused and tried to get into trouble for merely offering an opinion different from the great Bob, will be very disappointed that he is not going to get his comuppence. He really is the most obnoxious man I have ever come across. He claims to be all sorts of things but he actually runs a computer games shop in Gloucester. Not quite as grand as he likes to pretend!*"

*Do you know if there are criminal charges outstanding against him? He is possibly the world's biggest liar!"*

We'll leave it at that I think!

## **CP/M ALIVE AND WELL!**

If you thought buying new Spectrum software was long dead and buried - think again! *Locomotive Software / LSD Micro* are again selling Locomotive Software's incredible **CP/M** for only £11.95 including VAT, postage and packaging. For more details, email them at:

**lsdmicro@aol.com**

Even if you don't own a Spectrum +3 it may be worthwhile to enquire on a price to supply a disk image of the CP/M software for use on Realspec.

If you're unfamiliar with CP/M, it's a powerful industry standard operating system, with software able to run on a variety of machines. A program written for, say, CP/M on the Amstrad PCW will happily run on the S p e c t r u m .

And this is where it is most powerful. There are literally hundreds of thousands of CP/M programs, most of them free - including one of the finest word processors ever written: *WordStar*. We are currently in the process of uploading 25 700k CP/M disks full to the brim of software onto our new site hosted by **emuunlim.com**.

## **HACKERS HANGOUT BACK**

Issue 10 is up for sale if you would like a copy then please send one Pounds fifty to:

*Andy Ryals  
29 Dent Drive  
Eastmoor Estate  
Wakefield  
West Yorkshire  
WF1 4JG*

## **PCW KING**

I simply must mention John King's site:

**www.pcwking.freemove.co.uk**

He has dozens of CPC, PCW and Spectrum +3 hardware and software for sale at VERY cheap prices! Go take a look.

# AY SOUND CHIP MOD *UPDATE*

Hi, here is an updated diagram of the ZX Spectrum AY chip sound distortion.

Here I show a MONO and STEREO diagram, both on the same page, and also an LM380 amp for the left channel.

The LM380 can be duplicated for the right channel. The top diagram is the MONO, and bottom is STEREO.

I accept no responsibility what so ever for any damage to your ZX Spectrum +3. or any other ZX Spectrum.

The STEREO can be adapted to the 128+2A/B As I have no ZX Spectrum 128 I cannot show you how to do STEREO on this machine.

I use a 3.5mm Stereo socket and a toggle switch for the ZX Spectrum +3 top case, I have fitted mine next to the RESET switch. The LEFT and RIGHT channel of the diagram will go to the 3.5mm Stereo socket. Ground can go to the UM1233 UHF can or to a suitable GROUND screw of the Floppy drive.

Just be careful of the soldering and cutting underneath the motherboard to cut the tracks of the AY chip.

IF NOT SURE DON'T DO IT,  
CONSULT A QUALIFIED  
PERSON.

Mike Lee.



## Spectrum+3 AY chip mono / stereo diagram

I accept NO responsibility what so ever for any damage caused to your Spectrum, if you are not sure what to do, see a qualified engineer.

Cut and lift both R43 and R42



Both R43 and R42 go directly to pin 3 Audio of RGB socket.

R43 = Brown,Black,Orange  
R42 = Red,Red,Red

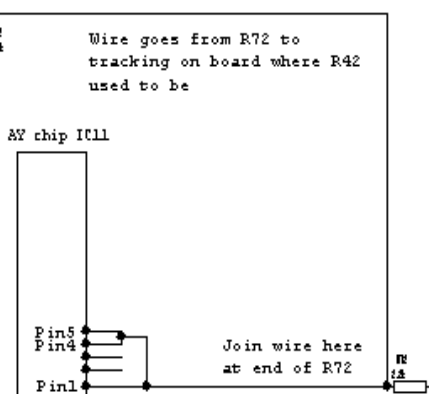
Pin 1 C channel

Pin 4 B channel

Pin 5 A channel

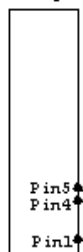
The tracking is joined under the board

So Pins 1,4,5 are all joined goto R72



MONO DIAGRAM

AY chip IC11



STEREO DIAGRAM

Ground on Stereo socket can goto UHF can UML233 or fixed to Floppy drive chassis.

I have put my Stereo socket and switch next to the RESET switch

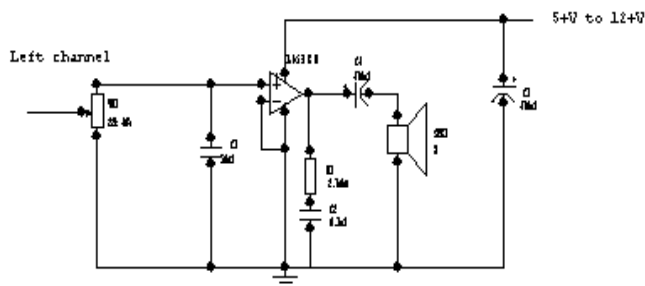
SUI choose AE and C or A and BC for best stereo effect.

Left Stereo socket

Right Stereo socket

Left and Right can goto Stereo Speakers or Stereo headset.

A typical stereo amp is here LM380 chip



although this LM380 does not, I HAVE NOT TRIED IT. This will be at your own risk. Just duplicate the diagram of the LM380, for the RIGHT channel.

# LOL, it's 1982

By Michael Bruhn

This will be a series of articles that will run here in AlchNews over the next many issues. I'll go through the Speccy games history which as you all know ranged from 1982-1993. This I hope will remind you of some of the best games ever released for our beloved Speccy.

The year is 1982, the Spectrum is being released half way through the year, with some delivery problems. But still, some great games were released that first half year of the machine's existence. At the end of this article and all the other articles in the next issues, I'll give you my personal Top 10 games of that particular year. Tough work, that is.

So, what was typical for games from that year? Well, most of them were conversions of arcade machine games such as Pacman, Asteroids, Scramble, Centipede and many others. What really surprised me when going through the many games released that year was, that I didn't find any proof

of a Frogger game. The first Frogger games came in 1983.

Artic released some of the best conversions with Galaxians and Invaders. Two great games that will bring back the early years arcade memories in everyone of us. Try them out, they are great.

Also the release of traditional boardgames like Chess, Backgammon, Reversi and Draughts was in fashion. The



**Spectral Invaders from Bug Byte.  
The first commercially released  
game for the Spectrum?**

first Chess game released was Masterchess by Mikro Gen, later released with a few changes named Chess by Sinclair.

It's always been claimed that Spectral Invaders from Bug Byte was the first commercially released game for the Speccy. Well, let's take a look at this right here.

The first advertisement for Spectrum games in Sinclair User appeared on the backpages in the July '82 issue. Cases Computer Simulations (C.C.S.) advertised Autochef and Airline for both the ZX81 and the Spectrum.

In the August '82 issue, a company called Serious Software brought a quarter page advertisement where they offered a cassette with 4 games on it; Supermind, Quest, Reverse & Star Trek. In the same issue, Abersoft advertised Adventure One and Mazeman.

So, were these games the first games for the Speccy? Well, Bug Byte claimed that their game Spectral Invaders was the first commercially released game for the Speccy, but it

wasn't advertised until September '82, two month later than the two games from Cases Computer Simulations. The advert said 'The very first, perfect arcade quality Machine Code game on cassette for the sensational SINCLAIR ZX Spectrum'. The advert even stated that there was a 12 months' guarantee on the game.

Well, as I see it, C.C.S. released the first games for the Spectrum. I'm not quite aware if C.C.S. and Abersoft were home-grown companies at that time, unlike Bug Byte, but that still doesn't make Spectral Invaders the first game released for the Speccy. Even when it comes to Arcade versions it's not the first, as Mazeman from Abersoft is a Pacman style game. The only thing that you could say is that Spectral Invaders was the first 100% machine code game for the Spectrum. Well, this is my opinion. If you see it otherwise, please let me know.



Companies that specialised in a certain type of game quickly emerged and released a bunch of games. The likes of C.C.S., who specialised in Management games, where they put you in control of some kind of business. Besides the two games mentioned before, they also released Print Shop that year.

Then there was Lothlorien, who concentrated on making wargames. The first games they released were Roman Empire, Samurai Warrior & Tyrant Of Athens. All of these games were conversions from the previously released ZX81 versions. You can think what ever you like about companies like C.C.S. and Lothlorien, but they filled a gap through the first years, where no other companies touched these types of games, just like D & H Software became the first address when it came to sports management games a few years later.



For most Speccy games collectors, C.C.S. games are the most popular items from that year.

The first Golf game was also released by R & R Software, which also was one of the first Speccy games reviewed in Sinclair User together with Meteor Storm (Quicksilver) and Winged Avenger (Work Force) in the October 1982 issue.

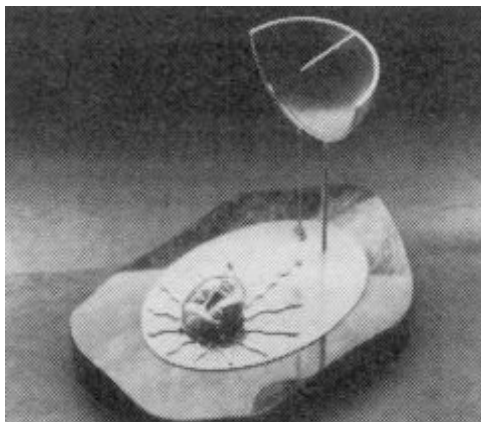
Besides the management games from C.C.S. there also was the incredible Football Manager from Addictive. This game really changed the software industry. It's probably one of the best selling games ever on the Speccy. Everyone will know what the author of this game, Kevin Toms looks like, as his picture always followed adverts from Addictive. There was a total of three Football Manager games from Addictive, but the first one is probably the best, because it bring us all so many great memories.

Football Manager is considered the best football management game for the Speccy by some. That's not so, at least not in my opinion. Games like Football

Director and Tracksuit Manager are much better. But we have to remember that Football Manager was released in 1982, while Football Director was released 1986 and Tracksuit Manager in 1988.

Besides Football Manager and the C.C.S. games there was also a game named Great Britain Ltd. (Hessel Software), where you had to manage a political party and lead them to the power. A genre that wasn't very much used in the 12 years of commercialised Speccy games industry. The only other game of this kind that I can remember is 1984 from Incentive.

If you think back to 1982 and you want to label some of the games from back then as cult games, you'll definitely label Football Manager with that title, but also another game, that put the spell on the computer industry for several years. I'm of course talking about Pimania from Automata, starring the Pi-Man. This game was a type of competition game, where you had to solve a lot of puzzles to figure out the place of the Golden Sundial. The first to solve this mystery would win



**The Golden Sundial of Pi.**

the Golden Sundial which was valued at £6000.

It took over 2 years before someone solved the game. The winners were 2 ladies from Ilkley in Yorkshire, named Sue Cooper and Lizi Newman, who found out that the Golden Sundial was to be found at the mouth of a horse cut into the chalk hill of High and Over, near the villages of Alfriston and Litlington, in the Sussex Downs. This happened on July 22nd 1985.

Looking back I find it very disappointing that none of the big Spectrum mags made a proper article about the solving of Pimania, it was only briefly mentioned in the news. If you want to read more about it, you must get hold of the October

1985 issue of Computer & Video Games, where you'll find a great article on this by C&VG's adventure columnist Keith Campbell.

Another game from that year, where you could win a lot of money if you solved it was Krakit by Artic. If you managed to solve the 12 clues, you would find the name of a country, a town and a number. The prize money for solving this games was £10.000 and was later raised to £14.000.

As far as I know, no one ever solved it. Better get that Krakit tape dusted off and loaded into the Speccy, must go.....well all right then, with my brain it wouldn't be much use loading up the game anyway, so I better stay finishing this article.

1982 also saw the very first Dungeon & Dragons type of game released in the shape of Black Crystal from Carnell Software. This was a huge game in 6 parts, where you got a number after completing each part of it. That number you then had to enter in the next part to continue. With Night Flite from Hewson, we also got the first Flight Simulation game, which was programmed by Mike Male.

One of the biggest and best companies on the 8 bit scene started in 1982 as Spectrum Games. If you know which company name they changed to later you can win a free Spectrum game from our spare games list, which you can find on our website. Write us if you know the answer, if not, wait for the "Look, it's 1983" article to get the answer.



Now, the question is how can I end this article. Oh yes, by awarding the worst company that started out that year. It will not come as a surprise to you, but the Award goes to.....C TECH. This company really managed to release a lot of boring and bad programmed games back then. The worst

was Krazy Kong which had so many bugs that people who bought it, sent it back in big numbers.

### My Top 10 of 1982:

1. Football Manager - Addictive
2. Galaxians - Artic
3. Frenzy - Quicksilva
4. Mazeman - Abersoft
5. Tanx - DK'Tronics
6. Gulpman - Campbell Systems
7. Ground Attack - Silversoft
8. Hungry Horace - Sinclair
- 9 Derby Day - CRL
10. Super Deflex - Llamasoft

Just out of the Top 10:

Escape (New Generation) & 3D Maze of Gold (Gilsoft).

Three Pacman games in my Top 10. Well, don't think that's all Pacman games from that year, there was also Crabs (JRS Software), Spookyman (Abbex) and Gobbleman (Artic). Only four games on my Top 10 which aren't Arcade clones. They are Football Manager, Tanx, Derby Day and Super Deflex. The last one is probably the most unusable game of them all, while Derby Day probably would be

considered the most boring game on there by you readers. I wonder if a game like Derby Day could sell today, probably not.

Michael.

# MICHAEL HARROP: A TRIBUTE

I first came into contact with Mick back in 1997. He had seen an advert for AlchNews somewhere

in Crashed magazine, of which he was a subscriber. At the time he lived very close to me, just over in the next suburb of Sheffield. Like most readers of AlchNews, I don't see them as customers, just mutual friends, which is why I've always offered the magazine for free! And Mick was no exception. He was interested in our early coverage and support of the Z88, which I picked up at an NSS show from Colin MacDonald, a leading name in the SAM community. Living so close, he popped over to have a try at the machine

before buying one from Bill Richardson.



During the summer of that year a free access email only service called FREEMAIL was launched. Mick and I used to while away our time giving this service some severe stick by using it to email files to each other!

Mick became a great colleague, very much interested in emulators and

my luck in getting Sinclair gear very cheap.

There was this one time we went over to Worksop to buy some Spectrum gear from this



woman who was clearing out her garage after her husband's death. Like Mick, he was a great fan of anything bearing the Sinclair logo and we came away with boxes of Spectrums, software and hardware. Already having what I considered a complete set-up, we sold most of it to Thomas Eberle and I gave Mick a Disciple disc system and Microdrive & Interface 1 set-up.

It was with this kit that Mick began to do what made him famous - converting discs and discs of PD material over to TAP files for upload to the Internet, and converting files from Microdrive to other media for folk - all free of charge.

His little attic room, previously only containing a PC, became a 'Sinclair Museum', with almost every model set up and working. A humble Spectrum+ with multiple Microdrives, a grey +2 with Disciple and a +3 with external drive. He loved collecting manuals and 'big boxed' utilities.

There was this one time at the last NSS Show in Horwich, near Bolton, when Arnold Yates was doing a deal to sell his

Spectrum supply business to Bill Richardson. We were asked to come along, to see if we wanted any equipment. Bill took most of the hardware, but didn't want the software and books. There were absolutely boxes of the stuff! We had gone to the NSS show with a few bits of our own but Mick didn't want any of this stuff to go in the bin. My car at the time was a five door Vauxhall Astra hatchback and it was filled to the roof with stuff. We had gear on our laps and in the footwells - it was amazing we didn't get stopped!

But, it was not all computing. Mick, despite having lost part of a lung at an early age, and suffering from asthma and numerous other illnesses, loved the outdoors. And when he wasn't at work or on the Spectrum, he was out in the wilds of the Peak District, walking miles over moors and hills. There was this one time, right in the middle of Winter, that I got a text message on my phone saying, simply: "On Kinder Scout in a blizzard & loads of deep snow, it's great!".

Due to work commitments, I only got to go on a few long

walks with Mick, but I immensely enjoyed them all. One was to visit a large cave in the White Peaks. During this walk, the day after Boxing Day, with snow on the ground and an average temperature of -1, he said he always wanted to do a 'night walk' - a twenty mile round trip during the evening and into the early hours, navigating with only torch and compass.

I humoured him by agreeing but, a few months later, there we were wandering around Kinder Scout at gone 2 a m, desperately lost. After scaling sheer rock faces, venturing into unknown dark forests and

scrambling through deep mud channels, we came to the village we had camped at.

Mick was a great socialiser. I'd been out on the razzle in Sheffield a number of times and he could last for hours. His favourite tippie was Brandy, and he'd throw half a dozen

down our necks long after I was ready for throwing up down a back street! I also enjoyed more sedate, family camping with him, Louise and Josh in Skegness and Abersoch.

Since moving to Manchester last year, I didn't see Mick as much, but we kept in regular contact. I had bought a GPS



Mick & myself (left) on our Xmas walk in the Peaks.

unit and a Psion 5 recently and he was looking forward to seeing them, with a view to getting his own GPS for use on his lone walks. Mick was also a keen sailor and looking forward to sailing my boat at Abersoch during the remainder of the summer, as well as us doing some more day and night walks

in the Peak District.

It was about 11.40 on Thursday, 25th July, that I received a call on my mobile. It said 'Mick Mobile' but it was actually his wife Louise, informing me that he had died the previous evening, cycling home from his job as a care worker in a retirement home - another passion of his that he devoted all of his efforts to.

Mick always said that he would die pretty young because of his weak immune system. But what precious life he did have he certainly made the most of it. Mick was a great friend and will be sadly missed.

The funeral was held a week later and was an incredible affair. The chapel was completely packed out with hundreds of mourners. There weren't enough seats and many had to stand at the back. The priest gave a moving and very emotional service which celebrated Mick's life to the fullest.

Andy.

## YOUR TRIBUTES

After hearing this terrible news, a few of Mick's close associates emailed their condolences:

*I've just popped into css and saw the news. I only met Mick a couple of times, but he was a nice and friendly chap and helpful as well such as when he took over the distribution of Slowdos and DiSCDOS. Send my condolences.*

### **Dominic Morris**

*Buenas tardes  
Escribo este e-mail desde Madrid (España) para expresar mis condolencias a la mujer y el hijo de Michael Harrop. Siento mucho su muerte. Descanse en paz.*

### **Carlos Morejón**

*Thanks for letting me know about Mick. Although I only met him a couple of times, he was a fun guy to know and I enjoyed talking to him & emailing him immensely. Please pass on my sincere condolences to his family.*

### **Garry Lancaster**

*I feel deeply saddened by the going of Michael. Although I haven't worked with him, I've spoken with him on several occasions, as he was a registered user of TAPER and he several wishes for improvement of the program. I recall him being a patient and thorough man, and I do wish I'd known him better. His death certainly is a big loss to the Spectrum community.*

*Of course I wrote an entry to the What's New page. Apart from mentioning the fact, I forward people to you (and your site). Hopefully they will respond to your plea to set up a tribute.*

*Should you wish to pass more information about your tribute or ask for any help I can provide you, please do not hesitate to contact me.*

*Best regards,*

**Martijn van der Heide**

*Owner of the official world archive for the Sinclair ZX Spectrum The World of Spectrum,*

[www.worldofspectrum.org/](http://www.worldofspectrum.org/)

*I've just been informed that Mike Harrop, a long time contributor to the AlchNews Spectrum 'zine - and responsible for running the AlchPD Software Library - died on Wednesday evening.*

*Unfortunately I was not lucky enough to have known him personally, but I've seen the results of his contributions to both AlchNews and to the PD library - and he's certainly worked hard on both of those.*

*It goes without saying that my sympathy goes out to his family.*

*Regards*

**David Ledbury**

*Like you, I did not know him, but it is still sad to hear of the loss of a fellow Sinclair lover.*

*My sympathies.*

**Steve P.**

# THE +3 RETURNS

The Spectrum +3 was, without a doubt, Amstrad's finest Spectrum. The grey +2 was criticised for its built-in, non adjustable tape desk, the +3 criticised for using 3" disks and the black +2a criticised for just being built. But, the +3 was the lesser of the evils.

The disk drive was comparable to the Microdrive system - yes you had file access much faster than tape, but it was still restrictive and lacking. With the microdrive, it was slow access, expensive cartridges and limited storage capacity, pretty much the same with the +3. However, there was much more to the machine than just the drive; the ROM and RAM arrangement was made in a certain way that you could redirect the ROM area to an area of RAM. This meant you could run a customized ROM, something emulator owners now take for granted. It also gave the machine the capabilities to run CP/M - the old industry standard operating system.

The black beastie also had a

parallel printer port and, lo and behold, a mysterious 'DRIVE B' socket at the back. This was originally designed for the Amstrad FDD-1, an external 3" disk drive. Yes, I did say three inch. Quite why you would want another when you have one of the horrible things built in is beyond me. Luckily, skilled users put their soldering irons to work and managed to get an industry standard 3.5" drive fitted. Combined with the excellent programming skills of Chris Pile and many others, programs which could format the second drive to the 706k PCW standard made the machine much more powerful and able to access CP/M software written for Amstrad PCWs. Dominic Morris even wrote a program to allow the +3 to emulate a +D to read and write +D disks!

And that's basically it for the +3. A handful of games came out as +3 disk versions and there were some pretty good utilities, such as DICE and TASWORD +3. Well, that was it for my +3 anyway. It was a central part of the Alchemist operation - converting the text files to

AlchNews files until Dominic Morris made a +D version. Then the machine went to Mick Harrop's Sinclair museum for a short period, and then boxed away back in 1999.....

## A NEW RELEASE

Until a few weeks ago. An email, totally out of the blue, from John Cleveland, woke me up and put me back in the world of emulating once more. His email was congratulating me on putting the PDF versions of paper AlchNews on the web site. He also casually mentioned in passing about the latest release of *Realspec*, a pretty good emulator but one that didn't stand out from the multitude available, other than the fact it could run the East European *TRD* type disc demos, something my other emulator *Z80* wasn't too hot on. Don't get me wrong, I'm not knocking *Realspec*, I actually had it installed along with *R80*, just the fact I was born and bred on *Z80* and never got around to change.

But, he mentioned that the disk support of the emulator now catered for 706k disks and CPM. This meant that the

emulation would be pretty near perfect. So, off I went to WOS to bag my copy. Now, it worth mentioning here that there are no less than **three** versions - each optimised for the particular processor your computer may be running - AMD (covering the K6 series, Duron and Athlon processors), Pentium (for original Intel Pentium and Pentium MMX processors up to 233Mhz) and i686 (catering for Pentium Pro, Pentium II, Celeron, P3 and P4 processors). Get the right one, and the ROM files archive and you're away. (The ROMs archive contains the ROMs of the 48, 128, +2, +3, Pentagon and Scorpion computers, and also the disk operating systems of TRDOS and the MGT Disciple and +D disk systems. Want any more than that, such as copyrighted Multiface ROMs and you'll have to do a bit of searching!)

## INSTALLED

I'm not going to delve too much into an actual review of *Realspec* because John Cleveland himself has written one elsewhere in this issue. This article is my report on the install and operation of it.

It took me a good hour or two to familiarise myself with *Realspec*, being used to Z80 and all, and the disk system but it's quite easy: The +3 mode supports two disk drives (not counting the internal ram disc 'M'), known as 'A' and 'B'. On the real +3, 'A' was the internal (or should that be infernal?) drive and 'B' was the external. Pressing F6 brings up the disks menu where you can select a disk image file (.DSK) to go in either of the virtual drives. The biggest bonus is that you can select 'physical device' and put an actual real +3 disk (3.5" of course) into your PC's floppy drive and read it.

Pressing ALT F6 brings up the disk image control menu where you can actually make your own blank disk images, convert a disk image to a real floppy disk or convert a real floppy disk to a disk image. It's worth making a note of the **DISK SYSTEM TYPE** option before making a disk image. It's initially set to **+3 DOS**; use this and you will only get standard 178k disks. Use the cursor keys until **+3 DOS 720k** is listed and then it will create much larger disks.

After having a play with the disk images, it was time to start converting some of my +3 software. When John told me about *Realspec*, I went over to Sheffield to get my +3, external drive and all my disks out of storage.

## DISASTER STRIKES

After setting it up back at home I was amazed to see it still worked. But, there was a problem: it was like the letter P key was stuck down. I panicked - was the keyboard membrane shot? No, the letter key was actually stuck down! I removed a tiny blob of *blu-tac* and all was well - almost. None of the 3" disks were reading. Well, actually only one was. Luckily, the 3.5" drive was running like a dream. Thinking something major had worn I quickly made a backup of the only 3" disk that was reading. But about half way through transferring it gave up the ghost. Thoroughly disheartened I poured a large whisky and gave up for the night, wondering where I could get a cheap working +3 from. Not an easy task in the Manchester area because the

local freeads papers are full of collectors who buy them for buttons and either keep them or flog them on at inflated prices. Then it struck me that I could get an old PCW for less than twenty quid and whip the drive out of there. Then I recalled one of the most common problems that +3s suffered with - drive belt wear. Could the belt have worn over the years? I took it out and went to a local electrical shop (**Minster Electrical, Railway Road, Leigh, Lancs.**) They matched it immediately and gave me a slightly smaller replica for just £1.50. I fitted it, gave the +3 and drives a really thorough clean and re-assembled it all back together.

I gingerly put in a 3" disk, went to BASIC and typed CAT. Success! Tried another disk - success again! Just about every disk worked, with the drive as quiet and fast as when the machine was new! I quickly set about transferring the disks to 3.5", my intention to get them converted to image files and then archived away safe on a recordable CD.

But, something wasn't quite right with the transfer program

in *Realspec*. I tried a variety of different set-up combinations but the created image file just wouldn't read. Scuppered! After contacting the authors, *Ramsoft*, they confirmed that it was most likely my running of Windows 2000 that was causing the error. After all, John was using Windows ME and all was well for him. And I noticed that I didn't have any sound.

I contacted my old colleague John Elliott, author of dozens of classic Spectrum, CP/M and PCW utilities over the years, who recommended the *PCWTRANS* program supplied with his PCW emulator *Joyce*.

Incredibly it worked first time! Although I couldn't do the whole process under *Realspec* I was able to actually convert the disks. And not before time too. I had 25 706k CP/M disks full of programs and a few of them showed up errors. But, the bulk of the programs were recovered and archived somewhere safe.

I was going to cover them in this issue, but I'll hold it for now and next time we'll look at running CP/M on Realspec and



review some of the utility programs and have a play at the very first adventure game—CLASSIC ADVENTURE. We'll also tie it in with the uploading of all our CP/M disks to the new *Emulators Unlimited* server.

### **+3e and HARD DRIVES**

If you read the documentation with *Realspec*, you'll see that it even offers support for the **MB-02** disk system, sold by Thomas Eberle's *Sintech*, and Garry Lancaster's +3e computer system. However, to use either, you need the relevant ROMs.

I contacted Thomas for his feedback on this support and he said:

*MB emulation is useless. The Mb02 is a fine thing for Spectrum users as they can work with it like on PC, with a lot of space in the SRAM and on disks. It emulates Tape and can ran PC-TAP files. But a normal Spectrum-emulator can already do that. All emulators can use the HDD of the PC for saving and they can load the Tap-Files.*

*The programmers could do better things in that time.*

*We are not the producers and not the owner of the copyright of the MB02. However, in my eyes it is not correct to reproduce anything in Emulators without asking the copyright-owner*

I emailed the manufacturer of *MB-02* but they never replied. I did stress that emulation is good and could be profitable for them. Many in the UK would like a machine like this but don't really have the money nor space for it. My own machines were in storage for a couple of years because I simply didn't have the space to have them set up. Plus, I am a bit reluctant to spend over £100 on old eight bit equipment, it's too much of an extravagance. Now, if I could buy an official release of the ROMs at a much cheaper cost, I certainly would.

Luckily, Garry Lancaster has a completely different view on this matter. His +3e disk system was nothing short of revolutionary. A small interface on the back of the +3 allows you to fit a genuine PC hard drive (albeit only certain types), combined with a new ROM to give extended commands to run this new drive in BASIC.

Like the MB-02, this could change the way you use your +3 forever. It should encourage people to start using their machines again and start writing new software. But it all boils down to space and money. You've progressed to a nice new PC now and the old Spectrum set-up has been binned, sold for £20 or thrown up in the loft. You don't want the hassle of finding the space and setting it back up, that's if it even still works. But, get *Realspec*, use the official link to Garry's site and you can download the ROM and be using a 'new' machine almost instantly!

### STARTING THE +3e

Once you've downloaded the ZIP file, uncompress it to the same folder that contains *Realspec*. Start the emulator as normal and then press F3. Highlight the +3 and then press F3 again. This is where you can choose which ROM file you want to use. This would normally be set to the standard +3 ROM unless you've made changes in the initialisation file *REALSPEC.INI*. By pressing ENTER you can bring up a list of all the ROMs in the directory

folder. Highlight **plus3e.rom** and press ENTER and then press escape twice. You'll notice a bit of change happening to the machine being emulated but don't worry about that.

Press ALT F2 to reset the machine and you'll then notice the new +3 start-up. The menu tells you that you're running a +3e and at the bottom you'll find much more detailed information about your computer system. It tells you that you'll have either one or two floppy drives (one is always set as standard unless you have a disk image in the second drive when you reset), 0 ide (that's the hard drives. It says 0 because we haven't created one yet) and tells us that we have *logical drives* of A and M.

Logical drives are a way of us mere mortals having an easy way to access the drive. Early Opus Discovery based interfaces required complex code to transfer data between drive and RAM. The computer doesn't need identification letters to access the drives, but we do. "A" has always been regarded as the first floppy

drive, "B" as the second, with "C" usually the hard drive. This is also the case with the +3, although it also has a non-permanent ram disk "M". Once you've set up your drive and *partitioned* it into manageable chunks - similar to folders where you can keep games in one, utilities in another and so on - you can give these logical names, such as "G" for games or "U" for utilities. It may seem a little complicated but, follow the instructions through, have a mess around setting up partitions and deleting them before settling down to a permanent drive image and transferring all your programs to it and you'll visually see how easy it is to follow.

Now, press CTRL F4 and move the cursor down to *IDE MASTER DEVICE*. If you had a hard drive image file, just like with the floppies, you could press RETURN and select it. Otherwise, we'll have to make our own. We do this by pressing INS. If you know a bit about hard drives and cylinders and sectors, feel free to have a mess about and create your very own custom drive, but I'd recommend going with the settings that Ramssoft advise.

While you're on that page, make a note of the figures (32 *cylinders*, 16 *heads*, 63 *sectors*), you'll need these when formatting.

Press RETURN and give the image a filename. Press ESC to quit this menu and then ALT F2 to restart the emulation. You should now see that we have 1 IDE device - the image that we've created. If you're going to use the +3e and this image all of the time, it may be worth opening *REALSPEC.INI* in Notepad and making the changes there. You may wish to make a backup of the file first though.

Now all we have to do is format the drive for use. Following Garry's instructions, we enter the following:

*FORMAT TO 0,32,16,63,2*

This would format the drive to the exact specs. We created earlier, with two partitions. I'll pass you over to the capable hands of Garry for his comprehensive instructions:

# +3E NEW COMMANDS

## FORMAT TO unit,cyls,heads,sects,maxpart#

Use this command to format your hard disk so that it can be used by the +3e. Once you have done this, you can use the NEW commands to create some partitions. The command requires the following parameters:

unit : The hard disk unit to format; this is 0 for the master drive, and 1 for the slave drive.

cyls : The number of cylinders (1-65535)

heads : The number of heads (1-16)

sects : The number of sectors per cylinder (1-255)

maxpart# : The maximum partition number (0-65535). This limits the number of partitions you will be able to create. Choose carefully, since too few partitions and you won't be able to easily manage your hard disk; too many will slow down certain commands. It's probably sensible to work out how many partitions you can fit on your disk (16Mb is the maximum partition size) and double this number.

Example

```
FORMAT TO 0,658,16,38,15
```

Formats a Conner CFS210A master drive with a maximum partition number of 15.

## CAT [#stream] TAB [EXP]

This command displays a listing of the partitions on the hard disk(s) attached to your +3e. As with the +3's standard CAT command, you can send the catalog to any stream (eg #3 for the printer). If a drive letter is shown next to a partition, this indicates that it has a permanent assignment, and the partition will be assigned to this letter automatically on boot.

By specifying the optional EXP keyword, you can get an expanded catalog, showing the starting and ending positions of each partitions (this is not usually useful, however!).

Examples  
CAT TAB

Displays a listing of the partitions on your hard disks.

## CAT #3 TAB EXP

Sends an expanded listing of the partitions on your hard disks to stream 3.

## NEW DATA part\$,size

Creates a new partition ready for +3DOS to use. It requires the following parameters:

part\$ : The name of the partition you want to create. Names are not case-sensitive, and can be up to 16 characters in length. You can include "0>" or "1>" immediately before the name to specify whether the partition

should be created on the master (0) or slave (1) drive; if this is missing, the master drive is assumed.

size : The required size of the partition in megabytes, or Mb (1-16).

Examples

```
NEW DATA "0>Games",16
```

```
NEW DATA "My Documents",16
```

Creates two 16Mb partitions on the master drive, called Games and My Documents.

### **NEW EXP part\$,size**

Creates a new swap partition. Swap partitions are available for the +3e system and application programs to use as an extension to normal memory; they cannot be used for storing files or data. It is recommended that you create two swap partitions on your master drive, both of around 1-4Mb in size.

Parameters are identical to those used in the NEW DATA command.

Example

```
NEW EXP "swap1",4
```

creates a 4Mb swap partition on the master drive.

### **MOVE part\$ BIN**

Deletes the partition specified by part \$. Doing this will destroy all files that were stored on the partition!

Example

```
MOVE "Utilities" BIN
```

Deletes the partition named "Utilities"

from the master drive.

### **MOVE part\$ FOR name\$**

Renames the partition specified by part\$ as name\$. Note that the new name should not include a drive unit number, otherwise this will be included as part of the name.

Example

```
MOVE "1>Utilities" FOR "Utils"
```

Renames the partition named "Utilities" on the slave drive to "Utils".

### **CAT [#stream] ASN**

This command displays a listing of your current drive mappings. The display shows the drive letter followed by the partition currently mapped (using 0> to denote the master drive, and 1> to denote the slave drive). Floppy drives and the RAMdisk are also shown; these are devices numbered 2> (internal floppy), 3> (external floppy) and 4> (RAMdisk).

As with the +3's standard CAT command, you can send the catalog to any stream (eg #3 for the printer).

Examples

```
CAT ASN
```

Displays a listing of your current drive mappings.

### **CAT #3 ASN**

Sends a listing of your current drive mappings to stream 3.

## **MOVE drive\$ IN part\$ [ASN]**

With this command, you map a drive letter to any (data) partition on your hard disk. You can then access the new "drive" in the same way you would with any other drive.

You can use any drive letter, A-P, provided it is not already in use, and each partition can only be mapped to one drive letter at a time. One final limitation in the current (v0.87) release of the ROMs, is that only two partitions can be mapped at any one time.

It is also possible to map the internal and external floppy drives, and the RAMdisk to any drive letter (provided you have unmapped them from A:/B:/M: with the MOVE...OUT command first). To do this, just use the physical device code instead of a partition name. These codes are as follows:

- 2> Internal floppy drive
- 3> External floppy drive (if you have only an internal drive, you can still use this device number, and will be asked to change disks as necessary)
- 4> RAMdisk (note that some applications expect to find a drive M:, so if moving the RAMdisk to a different drive it is advisable to map a hard disk partition to drive M:)

Finally, by using the ASN option, you can make this assignment permanent (ie, it will automatically be set up every time you turn the +3e on). This is only effective if you have a hard disk.

Examples

MOVE "C:" IN "Games"

Maps drive C: to the partition named "Games" on the master drive. It is now possible to use drive C: in +3 BASIC commands, such as COPY "A: \*.\*" TO "C:" and CAT "C:"

MOVE "D:" IN "4"> ASN

Maps drive D: to the RAMdisk, and makes this assignment permanent.

## **MOVE drive\$ OUT [ASN]**

Removes the current mapping from the drive specified, leaving the drive letter free to be assigned to any other partition. It is also possible to unmap drives A:, B: and M: in this way, so that you can map them to a hard disk partition with the MOVE...IN command. The physical floppy drives and RAMdisk can be reassigned to other drive letters if you wish.

By specifying the ASN option, you can remove any permanent assignment for this drive letter, so that it is no longer automatically set up when you turn the +3e on.

Examples

MOVE "C:" OUT

Removes the previous mapping from drive C:, which can now be mapped to a different partition if required.

MOVE "B:" OUT ASN

Unmaps drive B:, and ensures that nothing will be mapped to this letter next time you switch the +3e on.

**LOAD drive\$ [ASN]**

**SAVE drive\$ [ASN]**

**VERIFY drive\$ [ASN]**

## **MERGE drive\$ [ASN]**

These commands can now be used with the ASN option, which specifies that the new default drive assignment should be made permanent (ie, it will be set every time the +3e is switched on). This is only effective if you have a hard disk.

Additionally, VERIFY and MERGE now work in the same way as the LOAD drive\$ command, so that they set the current default (load) drive for +3 BASIC.

Examples

```
VERIFY "C:"
```

Sets the current default drive to C.

```
LOAD "E:" ASN
```

Sets the current default drive to E, and makes this assignment permanent.

## **SPECTRUM INK i [ASN]**

## **SPECTRUM PAPER p [ASN]**

## **SPECTRUM BRIGHT b [ASN]**

## **SPECTRUM FLASH f [ASN]**

These four commands set the colours for the +3 Editor screen, allowing you to type programs in to the colour-scheme of your choice.

Using the ASN option, makes the new +3 Editor and +3 BASIC colour scheme permanent, so that these colours will be used whenever you switch the +3e on (this is only effective if you have a hard disk).

Examples

```
SPECTRUM INK 4:SPECTRUM
```

## PAPER 0

Sets the +3 Editor colours to green ink on black paper.

```
SPECTRUM PAPER 1:SPECTRUM  
INK 6 ASN
```

Sets the +3 Editor colours to yellow ink on blue paper, and then makes these colours the default on booting the +3e, together with whatever the current +3 BASIC colours are.

## **SPECTRUM ATTR n [ASN]**

Similarly to the previous colour commands, this sets the colours for the +3 Editor screen, but allows you to specify all attributes in one go. For ink i, paper p, bright b and flash f, the value is calculated as:  $n=(128*f)+(64*b)+(8*p)+i$

Again, the ASN option sets both the +3 Editor and +3 BASIC colours that will be used every time the +3e is switched on.

Examples

```
SPECTRUM ATTR 4
```

Sets the +3 Editor colours to green ink on black paper.

```
SPECTRUM ATTR 14 ASN
```

Sets the +3 Editor colours to yellow ink on blue paper, making these colours (and the current +3 BASIC colours) permanent on boot.

# READING IF 2 ROMS

## PHILIP MULRANE

This document details my efforts to read Sinclair Interface 2 Roms, in order to run them under some of the Spectrum emulators.

### HISTORY

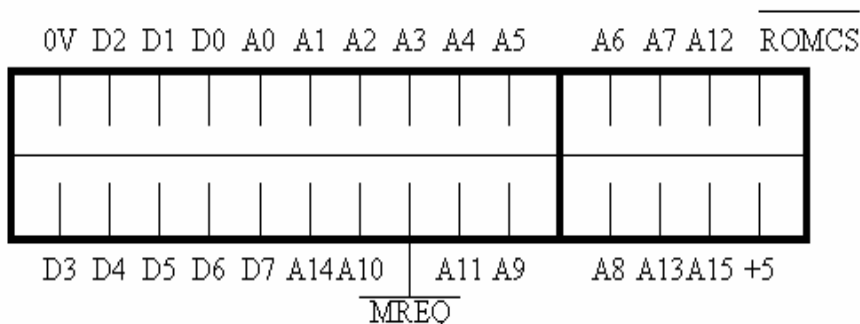
Sinclair's interface 2 for the ZX Spectrum is a bit of an odd wee puppy, comprising, as it does of a twin joystick interface, using its own standard instead of the then dominant Kempston standard, a pass-through of the expansion bus which is pruned, allowing only a ZX Printer to be attached, and most importantly (for the purposes of this document), a rom slot for cartridges.

- [Chess.](#)
- [Backgammon.](#)
- [Hungry Horace.](#)
- [Horace and the spiders.](#)
- [Planetoids.](#)
- [Space Raiders.](#)

They were intended to compete with the games consoles of the day, but were not very successful.

### THE SLOT

I used a multimeter to find out which connecting pin of the slot corresponded to which bus signal. Here are the results:



There were ten such cartridges released by Sinclair:

- Jetpac.
- Pssst.
- Cookie.
- Tranz Am.

The only point of interest here is that all 16 address lines are present, and the address decoding seems to be performed by additional logic contained within the cartridges themselves. Maybe it was planned to construct cartridges which would be able to map out the upper 32K of ram



in order to allow cartridges larger than 16K? My electronic knowledge fails me at this point, maybe someone else out there could enlighten us on this one.

### READING THE ROMS

In order to read the cartridge roms, I constructed an adapter allowing me to plug the cartridges into my BBC micro eeprom programmer:

I then copied the rom images to my PC via an Archimedes. Hex dumping through the roms reveals that most of them are only half full! And the ones that are full are padded out by a 'loading screen' 6912 bytes long.

rename the existing 48K basic rom so that the emulator can't find it, and then copy the cartridge rom to a file with the same name as the original 48K rom. I've tried the rom images with several emulators:

- Gerton's Z80 3.05, no problems.
- X128 OS/2 0.5, no problems.
- !Spectrum on the Archimedes, no problems.
- X128 0.93 (DOS), strange crashes, maybe he patches the rom in some way?

### HELP



I'm missing one of the original cartridges: Pssst. It would be great if someone out there would be prepared to swap/loan the missing cartridge, so that I can read it's contents, and make them available to the great Specyfing public. I have about 7 of the carts as

### USE WITH EMULATORS

To use a given rom with a given emulator, you need to replace the 48K basic rom with the rom of your choice. Some emulators have an option for this, for other's you need to

doubles, so I *might* be prepared to do a two for one swap. *If you are interested please email me at:*

***pmulrane@schuh-kg.de***

# EMULATING THE SPECTRUM +3 JOHN CLEVELAND

Out of the scores of Spectrum emulators which have appeared over the years, there are, to the best of my knowledge, only three which can emulate the Spectrum +3 under Windows or MSDOS.

Firstly, there is James Mackay's "X128" which reached version 0.93 in early 1999 and then seemed to stop in its tracks. It can be found at:

**[www.worldofspectrum.org/  
x128/index.html](http://www.worldofspectrum.org/x128/index.html)**

and is also on the World-of-Spectrum CD-ROM, for details of which see:

**[www.cdworld.co.uk/mmcd/  
speccy.html](http://www.cdworld.co.uk/mmcd/speccy.html)**

Secondly, there is Vaggelis Kapartzianis's "ZX32" for Windows, last updated April 2000, to be found at:

**[www.geocities.com/  
SiliconValley/Bay/9932/main.html](http://www.geocities.com/SiliconValley/Bay/9932/main.html)**

**html**

and again on the World-of-Spectrum CD-ROM.

Lastly, there is Ramsoft's "RealSpectrum", downloadable from:

**[www.ramsoft.bbk.org/  
realspec.html](http://www.ramsoft.bbk.org/realspec.html)**

which reached its beta-11.A release on 1 September 2001. This runs under DOS, or in a full-screen DOS-box in Windows, but a "native" Windows version is promised, and a LINUX version as well.

The rest of this article is devoted to the RealSpectrum emulator, which is by far the most sophisticated and is still under active development. It's really worthwhile to email bug reports to the authors who I have found to be most responsive and helpful. Indeed, pretty well all of the moans and

groans I made about the previous (beta-10) release have been addressed and put right.

## SIGHT AND SOUND

First, a quick word about the look-and-feel of the emulated +3 in RealSpectrum. The +3 ROM's notorious sound-distortion problem seems to have been circumvented, and my SoundBlaster card pumps out beautiful crystal clear sound. As for appearance, well, on my 17" Mitsubishi DP73 monitor, the +3 looks like a million dollars. The colours are wonderful and the title screens of the old OUTLET +3 disczine are stunning.

## DSK IMAGE FILES

The "one giant step for mankind" taken by beta-11 is the introduction of support for 720K disk-image files. So as well as being able to create a 178K image with 64 directory slots, you can now also make a 706K image with 128 slots - ready formatted too! These can be logged on to the emulated A: and B: drives just like putting real disks into a real +3.

In addition, RealSpectrum can read/write real +3-format disks

(typically 3.5" DSDDs) in the PC's floppy drive, and even copy them in one fell swoop to an image file. This is the "Read real disk to image file" option in the Disk Toolkit menu (ALT-F6). Alas, the reverse option ("Write image file to real disk") is as yet unimplemented, and something else you can't do at the moment is to format a floppy with anything other than the +3DOS FORMAT command.



Provided of course that you have a 3.5" B-drive attached to your real +3, transferring software to and from the PC has never been easier. Turn your discs into DSKs!

## MULTIFACE 3

RealSpectrum supports but does not supply Multiface 3. However you can find the MF3 ROM-file on the Web, for instance at:

**[www15.brinkster.com/  
rebelstar/roms.htm](http://www15.brinkster.com/rebelstar/roms.htm)**

and its manual as a textfile at:

**[ftp://ftp.worldofspectrum.org/  
pub/sinclair/technical-docs](ftp://ftp.worldofspectrum.org/pub/sinclair/technical-docs)**

Having MF3 on both the original +3 and the emulator makes it easy to transfer protected programs, and once the program is loaded into the emulator you can save it as a Z80 snapshot.

Talking about snapshots, there's an easily overlooked but very nice feature in RealSpectrum, namely the ability to make a flash-snapshot which is held in memory until you either overwrite it with another snap or exit the emulator. To make the snapshot, you hit ALT-SCROLL LOCK. To bring it back, just stab the SCROLL LOCK key. Very useful for instant return to the start of a program, or when you are jumping around between different applications, or just to recover after everything's gone

pear-shaped. Fabulous!

## CP/M PLUS

RealSpectrum can now load Locomotive Software's +3 version of CP/M Plus either from a boot floppy or from a DSK



```
CP/M Plus Locomotive Software Ltd
v 1.0, 61K TPA, 1 disc drive
RAMDISC v1.0 [size=12K] installed
SERIAL v1.0 installed

A>SETDEF *,C:[ORDER=(SUB,COM)]

Drive Search Path:
1st Drive - Default
2nd Drive - C:

Search Order - SUB, COM

A>PIP
CP/M 3 PIP VERSION 3.0
#C :=PIP.COM
#C :=SET24X00.COM
*

A>█ Drive is A:
```

image made from it. You can make a boot floppy on your +3's 3.5" B-drive, either with 173k capacity using CP/M's own DISCKIT utility, or, infinitely better, with 710k capacity using Cristian Secara's DKIT720K formatter which first appeared in OUTLET no. 89 as "DISCKIT+3". (Be sure to set the "Write CP/M boot" box before formatting.) Next, copy S10CPM3.EMS and any other CP/M files you want

onto it, and finally convert to an image-file in the emulator. Now you're ready to run Mallard Basic and all your other favorite CP/M applications.

Once you've loaded CP/M and got it configured the way you want, and with your favorite mini-utilities in the mini-RAMdisk, you can save the whole caboodle as a Z80 snapshot for install recall. You can even make a shortcut to this Z80 on the desktop, then all it takes is a single click to whisk you out of Windows straight into CP/M. (If Bill Gates were dead he'd be spinning in his grave!)

One oddity to report: Multiface 3 works when CP/M is in memory - something that doesn't happen on a real +3. The "magic button" is F2 but you must have the MF3 ROM-file and it must be activated in the Hardware Configuration Menu (F3).

For further +3 CP/M-related information and downloads, visit Cristian Secara's page at:

**[http://secarica.portland.co.uk/html/cp\\_m\\_plus\\_for\\_plus3.html](http://secarica.portland.co.uk/html/cp_m_plus_for_plus3.html)**

and John Elliott's page at:

**[www.seasip.demon.co.uk/](http://www.seasip.demon.co.uk/)**

## **Cpm/index.html**

(Note: the "C" in the "Cpm" of this URL must be entered in upper-case otherwise it doesn't work - Don't ask me why!)

Don't have +3 CP/M Plus? Amazingly, it's still available from SD Microsystems. For details go to:

**[www.pcwking.freemove.co.uk/plus3.html](http://www.pcwking.freemove.co.uk/plus3.html)**

## **TRANSFERRING FILES AND DATA BETWEEN DSK IMAGES AND THE WINDOWS/DOS ENVIRONMENT**

Suppose you've downloaded a Speccy program from the Web and want to get it into a DSK file for use by +3 Basic or Mallard Basic, or suppose you've got some text or data in a NOTEPAD textfile and you want to get it into a DSK file for importing into a +3 application such as Masterfile or Tasword. Suppose even that you want to do these processes in the reverse direction. Here are three ways of going about it, each having its own advantages and disadvantages. Best to experiment.

1. Via RealSpectrum's Memory Blocks function (ALT-F9). This is very similar to the Memory Blocks function in Gerton Lunter's Z80 emulator and used in a similar way - see Andy Davis's article in Alchnews 19:6 for details. This gets the program or data into or out of the Spectrum memory but leaves you to do the additional step of LOADING or SAVEing it. This method is fine for text and CODE file except that it's ultra fiddly.

2. Via a floppy, using Garry Lancaster's "MSDOS" utility which allows +3DOS to read/write an MSDOS-formatted floppy, typically a 720k DSDD, and can add and remove +3DOS file-headers as required. In my experiments, I've had success copying files from floppy to +3 DSK, but copying in the other direction has always aborted with various error messages. You can get "MSDOS", along with other interesting utilities in the file "ALLPROGS.DSK" at:

**[www.z88forever.org.uk/  
zxplus3e/software.html](http://www.z88forever.org.uk/zxplus3e/software.html)**

There is a similar utility by Dominic Morris called

SLOWDOS, but unfortunately I only have the ancient crippleware version, and I couldn't get that either to read or to write floppies under the emulator.

3. The direct route using Kevin Thacker's "CPCXFS" utility which reads/writes directly from/to DSK files, although in my own experiments I have only had success with 180k DSKs, not 720Ks. Suppose, for example, you have "textfile.txt" which you want to write into "TASWORD.DSK" in the same directory (sorry, folder). Then the simplest procedure is to click CPCXFS (or CPCXFSW) to start it in a DOS-box, and enter the following command sequence at the prompt:

```
OPEN tasword  
PUT textfile.txt  
CLOSE
```

To do this process in reverse, use GET instead of PUT. Use the DIR command to catalogue the contents of the DSK file.

This method should work for all types of file, but in most cases the result will be headerless - fine for CP/M, Tasword +3 and Masterfile +3. If however you

need to stick on a +3DOS header, then rename the file so that it has a .COM extension and then use the +3 Basic command:

COPY "filename.com" TO SPECTRUM FORMAT

as described on page 160 of the +3 manual.

The instruction files which come with +3 programs, especially CP/M utilities, are often difficult to display well on the +3. The solution is to GET them out and view them in WORDPAD. Why not make a subdirectory just for instruction files?

CPCXFS is available at several places on the Web. I got my own copy as part of the "DSK4PLUS3" package at:

[http://secarica.portland.co.uk/html/plus3\\_software.html](http://secarica.portland.co.uk/html/plus3_software.html)

### +3 ROM FILES

RealSpectrum comes with version 4.0 of the +3 ROM, but you can use something different provided it's in the

form of a single 64k file. For instance, you can grab a v4.1 ROM at:

<http://zx.siliconpark.it/128.htm>

or Garry Lancaster's "+3e" ROM at:

[www.z88forever.org.uk/zxplus3e/emulator.html](http://www.z88forever.org.uk/zxplus3e/emulator.html)

The +3e was created to support hard discs for the physical +3, and these can also be emulated as HDF image-files.



There is also a modified "blue" v4.1 ROM at:

[http://secarica.portland.co.uk/html/plus3\\_rom.html](http://secarica.portland.co.uk/html/plus3_rom.html)

in the form of four 16k files which you have to stitch together for yourself with the DOS command:

```
COPY /B PL3-0.ROM + PL3-1.ROM + PL3-2.ROM + PL3-3.ROM PLUS342.ROM
```

where "PLUS342" is my name for the new 64k ROMfile, but obviously you can change that to please yourself. This ROM has even more bugfixes than the original v4.1, and is unusual in that the +3BASIC interface colors have been changed to white font on blue background (same as default colours in +3 CP/M Plus).

The +3e and the "blue" v4.1 have one feature in common which is invaluable in dealing with 720k DSKs, and that is the ability to CATalogue more than 64 files at once.

### **+3 REPAIRS**

Before I could do many of the things described above, I had to get my own +3 repaired, and for that I turned to Mr John R P King whose website is:

**[www.pcwking.freemove.co.uk](http://www.pcwking.freemove.co.uk)**

I was very pleased with the work he did and have pleasure in recommending his services.

### **CONCLUSION**

RealSpectrum is a complex multifaceted program, and in this article I've only explored one or two corners of it. As well as the +3, it can emulate all the other common Spectrum hardware variants and interfaces, including Russian clones, and of course it supports tape files, micro drives, +D / Disciple (including IMG image-files), and a host of other features.

A good emulator lets you go back in time and re-experience the heavenly world that preceded the present age of bloated bugware (or is it bugged bloatware?).

With RealSpectrum beta-11.A, +3 heaven has truly descended to earth!

JC.



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