

# KILOBYTE MAGAZINE

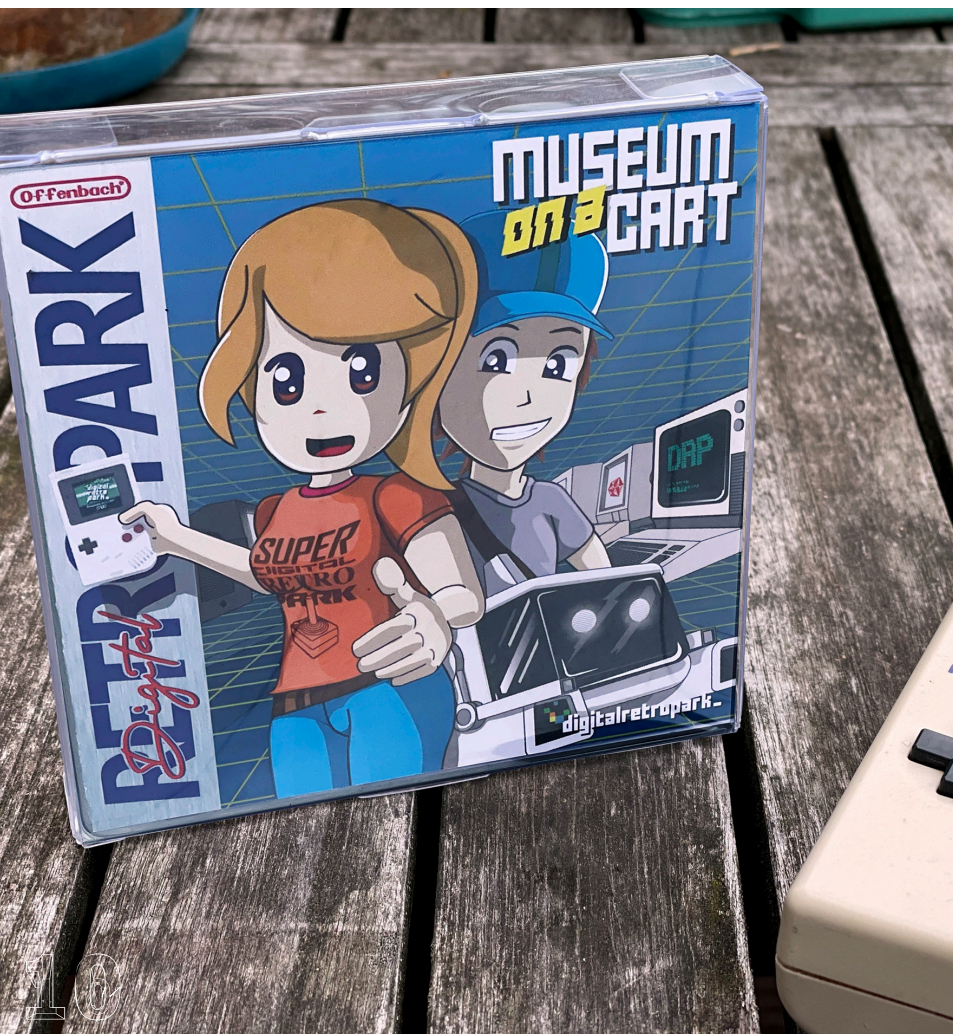
2021/1

30 YEARS OF GODOT (C64) · MUSEUM ON A CART (GB) · ACTIPLAQUE · SIXTYCLONE  
NORTHERN LIGHTS (ZX SPECTRUM) · CORSAIR TRAINER (CPC) · FINAL ASSAULT (XE) · AND MORE ...



8BIT  
ONLY



**DISCOVER – 6**

The art of floppy disk sleeves: presenting the nicest disk covers.

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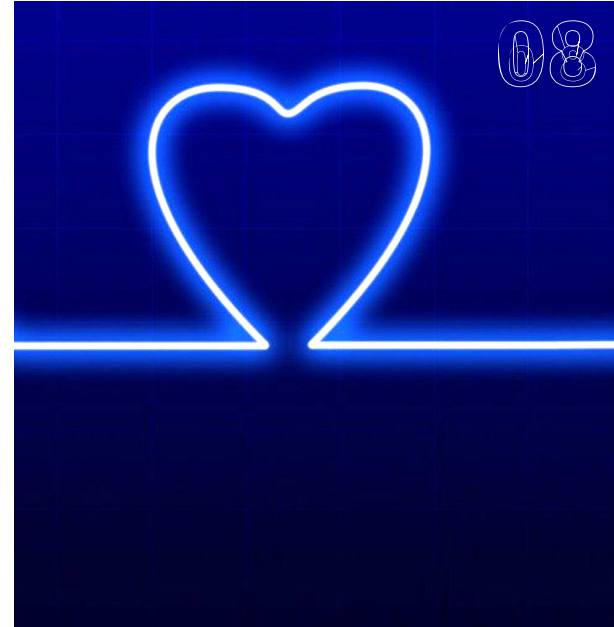
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Build a new C64 from new parts, starting with a very shiny new printed circuit board for three main-board revision of the old breadbin. More about that here.

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#### AND MORE!



#### KILOBYTE MAGAZINE'S

##### GEM AWARD

for games with exceptionally clever concepts, great playability and/or impressive technical features.

#### IMPRINT:

KILOBYTE MAGAZINE is a non-profit PDF magazine about 8-bit home computers and gaming consoles. It is published for free.

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# DISCOVER

THE ART OF FLOPPY DISK SLEEVES



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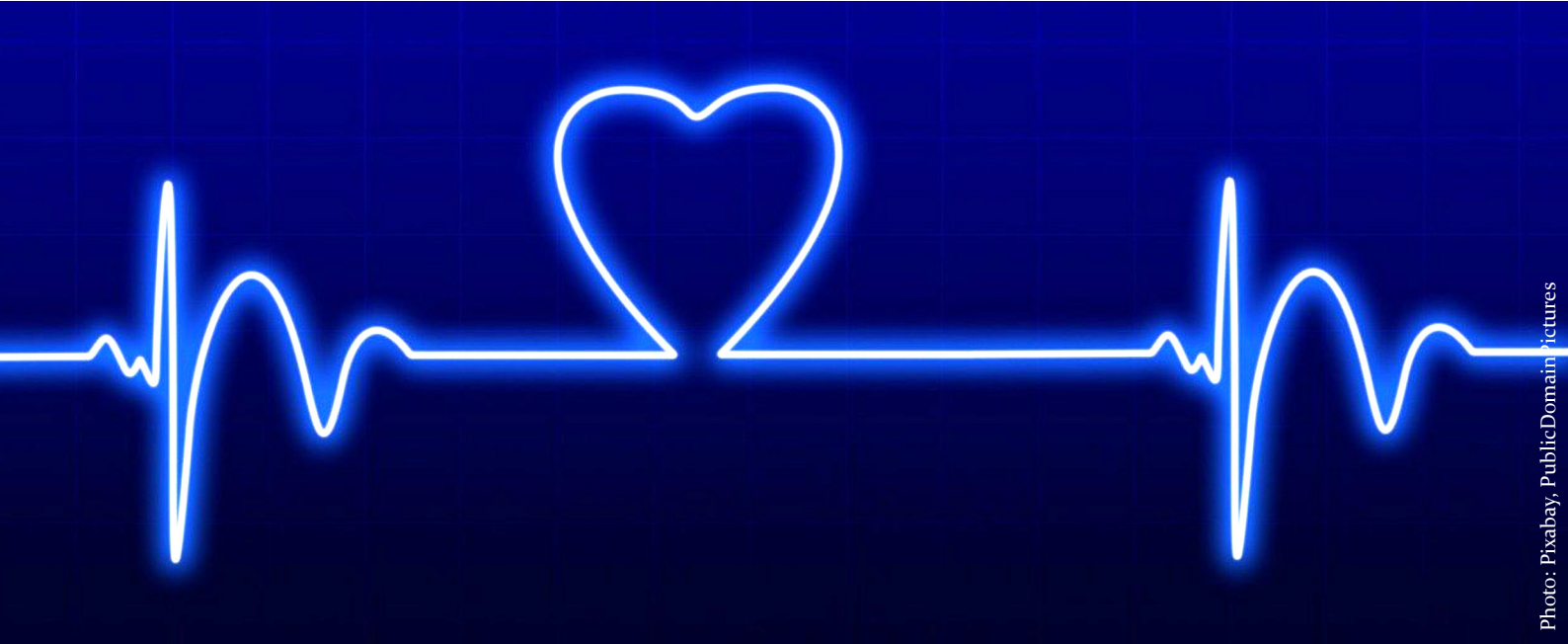
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I don't usually address you directly. But I feel it necessary for this issue, as you came to expect three issues per year so far. And this one right here took quite a while to materialize. My apologies to all of you who waited for the magazine so long, especially to the Patreons who supported this project for years. I paused the Patreon late last year, and then – by sheer stupidity – clicked the wrong button and unlaunched the site instead of pausing it. But it was for the best, I guess. As the Patreon thing was putting some pressure on me to deliver or justify whenever something went not according to plan. And in the long run, that did not work for me, as I felt I could not do justice to the supporters. Who, by the way just to make that clear, have always been very patient and understanding. My sincere thanks to you guys! I will leave the Highscore in the mag

for a while as a sign of my gratitude towards all of you!

So why is this issue so late, what's up and how about the future of the magazine? First of all, I will continue KILOBYTE MAGAZINE – but in my own time. I will not promise that there will be two or three issues per year from now on forward. Maybe there will only be one, let's call it an annual, if you will. The reason for that is that my focus has shifted a bit. Once I was happy to spend some more time at the laptop after coming home from work, where I was staring at a screen the whole day. I feel that I cannot keep that up. Every issue takes up a couple of weeks of continuous work, and while I enjoy it, it certainly binds a lot of free time. Time that I feel necessary to spend with other things. Furthermore, I started a book project after a couple of years without one and I am really excited to do that. It is video game



related and will be ready next year. And like this magazine, the book will be completely free to download and read, as I do believe in this concept. But it's not 8bit-related – sorry for that. However, you might find it interesting nonetheless.

So while I had to figure out how to progress with this little publication here and how I want to spend my free time, I pushed the deadline for issue 1/21 farther and farther. I also thought about putting the magazine to rest altogether. But then again, this is not an obligation I have to fulfill, it is a passion project. There are a lot of topics I find interesting around 8bit machines, and I would not want to stop to get in touch with so many wonderful and creative people who really love this hobby and keep the scene very alive and kicking.

I love that KILOBYTE is read and liked and even quoted here and there, like for example when Youtuber VWestlife referenced my article about new tape mechanisms and Tanashin in his video titled “New TEAC W-1200 cassette deck - Is it really THAT bad?”. That video got more than 411.000 views, so ... wow. But when I'm asked who I actually make this magazine for, well, it's me. Not in an egomaniac way, but I write and research about what tickles my interest. So in a way, this magazine is quite personal. And that's also the reason why I rarely seek out for outside articles. I did so on a few occasions, and I will continue to do so.

But when people suggest: “Of course it is too much work for one person, just build an editorial team”, I wave it off. Not because I'm unsocial, but because I have been there, with a printed magazine no less. And I learned a valuable lesson: Managing a team on a project is demanding. It is something I do in my job as well, I and don't want to come home and do the same stuff again. And moreover: Back when I did the printed magazine, I felt my control slipping. That is why with KILOBYTE, I started out with some rules: I do it all by myself (with little exceptions) and I offer it for free. These factors will not change.

Which is why, after having said all this, the magazine will live on, but on a reduced scale, perhaps just once a year. It's not like the topics we're focussing on here are that time sensitive. As the hardware and software itself, part of the experience is to slow down the highspeed everyday life and enjoy the fun in slow loading times, stuttering gameplay and less colors. I won't reduce the number of colors in this magazine, I promise. But for me, putting together an issue needs to feel more like the experience with the machines and games themselves again. You won't read anything firsthand here, there are no hot news. Even with three issues a year, that was impossible to do. So I hope you understand my point of view, accept my apology and I sincerely hope you continue to enjoy this little magazine. Cheers! (bk)



EXPLORE A WHOLE MUSEUM ON YOUR GAME BOY



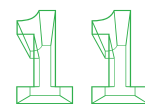
Photo: DRP e.V.

During the pandemic, there were a lot of things you could not do. Eat inside a restaurant, watch movies in your favorite cinema or visit a museum. It was a tough time, but it also sparked some creative solutions. Like the one Offebach's Digital Retro Park came up with, a non-profit association founded in 2013 with the aim of building a socio-digital cultural center in the Rhine-Main area. In this little Ger-

man museum you normally can stroll through the history of computers and gaming, sit down and play some C64 or Atari, Spectrum or old DOS games. You can even try out the extremely rare Polyplay arcade from the former GDR. There is a lot to discover there – but how to do it when you are not around? The answer is: Enjoy the museum on a Game Boy cartridge. That's right, the DRP is the first museum

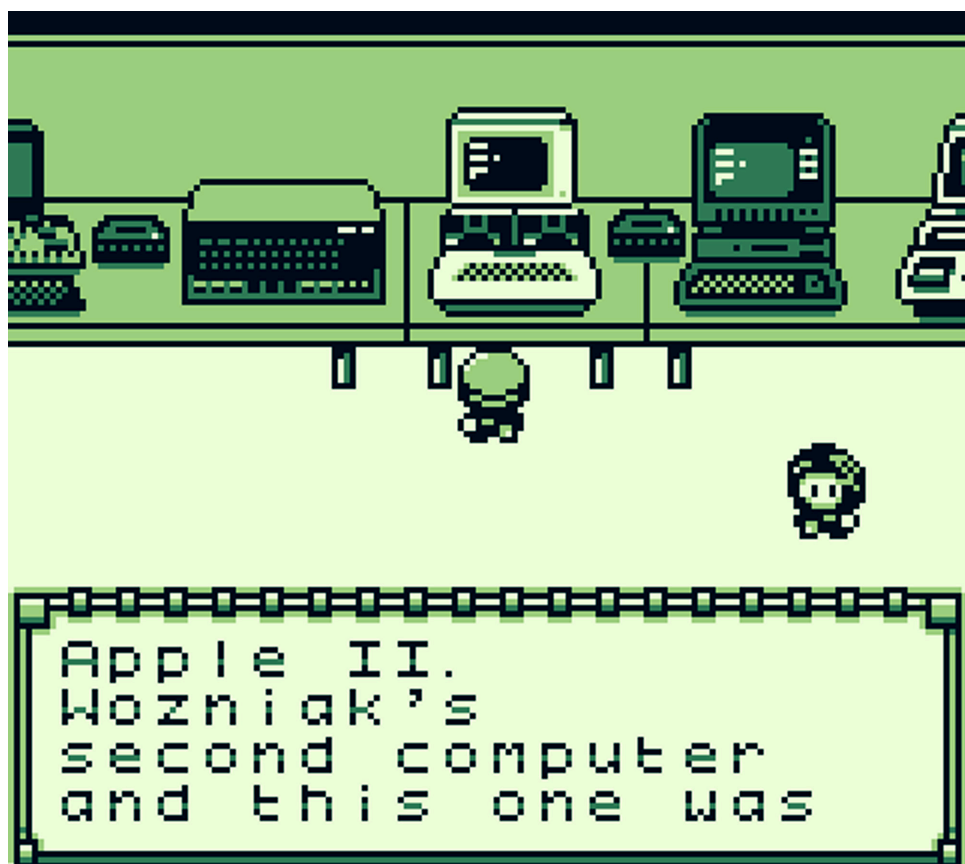


# A CARTRIDGE



in the world to have a Game Boy implementation on a cartridge for Nintendos classic. The museum was implemented on a small scale with all its rooms and exhibits from the current permanent exhibition, including brief explanations of the exhibits as well as fine gimmicks and of course a few Easter eggs (hidden extras with a surprise effect, like former Amiga-, Lynx- and 3DO-engineer RJ Mical saying hello). The player can move freely in the museum and marvel at the exhibition and talk to club members. It is practically the 8-bit implementation of a real museum visit – with the difference that the individual exhibits cannot be played in the implementation, in contrast to the real museum where (almost) every device can be touched, tried out and played on there. The “Museum on a Cart” is bilingual: all texts in the game are available in German or English. The cartridge was designed and implemented by founding member Falk Heinzemann, who shrunk the museum for Nintendo’s most popular handheld with the help of GB Studios, a game development environment for the classic Game Boy. The chiptune musician Tronimal is responsible for the music, which provides the perfect acoustic accompaniment. He created his own musical pieces as well as some implementations by TSM (Amiga) and DeerTears. All music tracks can be selected and enjoyed via a player. The cartridge comes in sturdy plastic

packaging, which also includes two stickers and a button. But the first run of a couple of hundred carts is already sold out – it was within a few hours. Currently, a second production run is in the works and will be available later this year for 50 Euros (excluding handling- and sipping-fees). However, there will also be a ROM version available as soon as the second run will be sold out, probably via itch.io. Every cart (and ROM in the future) sold helps the museum keep its doors open. It’s a nice addition to your Game Boy library and a fun way to explore a very nice museum, get some information on its exhibition items and support the guys and cause behind it. Find out more about it here. (*fh, bk*)





## THE SWISS ARMY KNIFE OF PICTURE CONVERSIONS



Photo: bk / Gam-Ol, pixabay.de

Everyone who ever did some sort of image manipulation with their computer knows Photoshop. It's the go-to software in this regard. Unless you prefer to use open source software like Gimp. But that's not the point here. Can you even imagine a powerful image conversion tool

on an 8bit machine like the C64, so that you can wire Amiga or PC image formats over to the beloved breadbin? Well, Arndt Dettke can. And together with Wolfgang Kling, he dreamt that dream as early as 1991, when the planning and programming started. The original idea



was sparked by Wolfgang Kling. Arndt remembers: “We knew each other more or less by chance and he had noticed that I knew a lot about C64 machine language. He himself was an absolute Amiga fan at that time. The original idea for GoDot was: It can’t be that complicated to port Amiga images to the C64, can it? And so we started, Wolfgang with GfA-Basic and the first monochrome rendering of Deluxe-Paint-pictures on the Amiga to see if that would work – and yes, it did! And I with TSB, which I had finished a few years before.” Inspiration for what the software should look like and in terms of usability came from Commodore’s 16bit machine as well: “Wolfgang’s favorite for image processing was Art Department Professional II (Adpro) on the Amiga, which of course I also used on my Amiga. I noticed that the interface of Adpro was rather simple and straightforward. That’s why I thought I could recreate it on the C64. So the first GUI of GoDot was a TSB mockup of Adpro and look at the two in comparison. Just like the original! :-). So the inspiration was Wolfgang, Adpro and above all the challenge to make it happen.” The two coders worked passionately on their software, which saw its first release in German 64’er magazine in 1993. “It released with a bang, so to speak, as it immediately became program of the month 7/93”, Arndt remembers. Since 30 years now he keeps updating GoDot, adding

plugins, optimizing codes. It truly can be considered his. As to where he gets the drive to continue working on his software, he said: “Well, it’s still the challenge that keeps me going! You wouldn’t believe the flow you get when you finish something, especially if you never thought it was possible before!” It is, in the truest sense of the word, a passion project. But does he know for which applications of games it was and maybe still is used? Arndt shakes his head. “I happen to know that it was used for Metal Dust where I am thankfully mentioned in the credits. I’m sure that happened more than once, but I never heard about it otherwise. A tool is a tool, you don’t ask for the author.” So what’s next for him and GoDot? Maybe port it to other platforms such as the upcoming Mega65? “No, rather not, for that others must engage themselves. I don’t want to learn how to use it. New suggestions come either from users who ask me for something, e.g. the support for color images on the VDC of the C128, requested from America. What Crest show in their C128 demo (Speccy to VDC) could also have been from GoDot, I just can’t program such nice slideshows, respect! Or the color saver for Geo-Paint images for Megapatch3 wallpapers (darkvision made me think of it), or the 3D anaglyph modules (originally requested by Hucky, suggested again on Forum64). And so on and so forth. There are lots of suggestions, I’m just waiting for



*A photo of Arndt Dettke (left) and Wolfgang Kling (right) in 1993. The photo was digitized with the Handyscanner Arndt misses so badly nowadays, saved as IFLI and finally converted to GIF to show up on his website.*

them!” And he is also pretty quick with implementing what can be done. As soon as a suggestion gets to him, he starts thinking, coding, improving until it either works or it doesn’t. And in most of the cases, Arndt finds a way to make it happen. “When I’m working on a solution, it can sometimes take me all night. All the more amazing when it works! The best example: the NuFLI loader. That was like a rush!” So is it the equivalent to Photoshop on the C64? And if so, why even bother using GoDot? “PC tools (Photoshop especially) do everything better anyway, you tinker

with your image and in the end you convert. With GoDot it’s the other way around: you have to convert first and then you edit.” It’s being able to easily convert images using original hardware and then bring them to pixel perfection that drives many users of the software which is freeware since “whenever it was that CMD stopped their business.” As far as user friendliness goes, GoDot works best with a REU. Without a decent memory expansion it is as tedious as under GEOS. Arndt sums it up jokingly: “If you use multiple modifiers, you’ll become disk jockey pretty quickley.” With all that pas-







sion for one application, does Arndt even play games on the machine from time to time? “Well I do switch on my C64 on a daily basis, but mostly via emulator. My old Commodore stands here beside me as a souvenir on his “altar”, one from an early series, bought in 1983. Everything else I gave away. Especially unfortunate because there was a Handyscanner – wish I had that one back! But as for gaming, I mostly play on Amiga and PC. I remember Great Giana Sisters on C64 though.”

After all that talking, what is the comparison with Photoshop about, you may ask? After all, that is not primarily an image conversion tool, unlike GoDot. And you would be right – but GoDot has some nice effects that will blow you away. And they pretty much do what filters on Photoshop would, only on a much smaller scale, getting used on a 1 MHz machine with 16 colors in total. Nevertheless, you can smear, which changes pixels within a 3x5 matrix at random. Speckle dissolves straight lines and adds noise to any

picture. Emboss is used to achieve a pretty convincing relief effect. OutlineColor removes color areas and leaves only the edges, which can be used to get a nice neon glow effect. WaterColor blends pixels in a 5x3 matrix in such a way as to give the impression of having worked with watercolors. And these are not all of the capabilities of GoDot, just scratching the surface here. The program really shows that it is a life's worth of programming, adjusting, adding some stuff, optimizing other. Heck, you even can play a round of Minesweeper if you feel like it – GoDot has you covered there as well. It's rudimentary, but it certainly works. If you own a REU, you can also use AnimPlayer and watch animation on your C64. Or just enjoy looking at some IFLI or FLI pictures. And if you want to copy files from one disk to another, there is even a FileCopy tool for that implemented that looks a tiny bit like Starcommander. One thing is certain: Arndt will keep working on this to add even more. There is no limit – so on for the next 30 years! Cheers! (bk)

*A small example of how powerful GoDot is: The conversion from the left image to the right took the software one click. Looks pretty impressive already, like it was taken from a scene demo.*



A COLLECTOR'S NIGHTMARE AND WHAT YOU CAN DO



If you ever took a closer look at any old Atari 2600 cart for longer than three seconds, you might have noticed something strange. On some carts, the label started to show some darker spots, as if it was dirty or somebody spilled something over it. It's a common issue not only with carts made by Atari themselves, but also with cartridges from Activision. In fact, the phenomenon is so widespread amongst that type of carts that Activision lend part of their name to the "disease" in collector circles: Actiplaque, a combination of the name of the first 3rd party Atari game producer and the word plaque. It pretty much sums up what you see and comes with a certain

tone of disgust alongside with it. It's not as easy to put ones finger on the first mentioning of the term as such. When searching online, the very first mention appears in a book from 1996 by Digital Press called "PsychOpedia - A Collector's Compendium of Videogame Manufacturer Information". Funnily enough, the term is used there to describe the discoloration of NES carts made by Color Dreams: "Their games came in distinctive blue or black cases - not green, that's Color Dreams' version of "Acti-plaque" [...]." So by that time, Actiplaque seems to have already been a well-known term at least amongst serious collectors. By the end of January 2002, Actiplaque



had found its way into AtariAges's online glossary, describing it as: "Mottling of labels that frequently occurs with Activision games because of the particular glue/paper combination." In December 2008, AtariAge user "jahfish" listed it in a thread about the most common "diseases" Atari collector's had to cope with, as well as the reasons for it. He stated: "The re-liquification of the glue and it's corrosion from oxygen softens it up and makes it sublime into the label – giving the dark mottled appearance. It also has been theorized that exposure to light and moisture either causes or accelerates the development of Actiplaque, but it has been observed even on newly opened factory-sealed games and it is unknown what, if anything, can be done to prevent it." Thomas Jentzsch added in another post on the same forum that "the adhesive has soaked into the paper, causing the blotchy look. Similar to what happens when you put potato chips on a paper plate. It's a symptom mostly of silicone based adhesive with a thin faced paper used in the label making process."

The problem of the matter is that even sealed games from Activision are very likely to have this form of deterioration going on, hidden away in their nice little box. How about collecting sealed games now, huh? You can't even expect pristine condition on an unopened Atari 2600 game. It has gotten to the point that collectors scratch their head when-

ever they find an Activision cart that has no rotted label yet. Are those a small badge that got another glue back in the day or are they sportnig reproduction labels? Anyhow, Actiplaque is a thing.

But once you discovered it, is there anything you can do? If the potato chips-paper plate-analogy is correct, can this process be reversed at all?

Well, the easiest way would be to use a hair drier and slowly but steadily warming up the label and the glue beneath it, so that the paper can carefully be removed without further damage. After that, the sticky residue needs a thorough clean with IPA. And lastly, it may be the best idea to print out a new label – good quality scans are accessible online – and glue it onto the cart. It is not original anymore, but it will certainly look better. Which is all fine and well when talking about a common game that you want to show on your shelf. But what about the games that are insanely rare and valuable, as they represent a piece of video game history? Would you dare to remove their label as well? Or wouldn't it be better to just leave it on there. But what if the Actiplaque will continue to damage it? What can be done to actually preserve the label at all?

Collectors have experimented with toxic and a carcinogenic fluids like Toluol or Naptha, which work for removing the labels – tested on less valuable games, of course – but also attacks the colors, leaving the label darker and duller looking at best,



destroying it by dissolving not only the colors but the paper at the worst. But fear not, there is help, and it comes from a corner of the world of collecting that gamers would not think about: stamps. That's right, the nice little things you used to put on letters back when you actually used this method of communication. Or maybe you still do, as you are also someone who turns on his old Atari every now and then. Once again, a user at AtariAge (called "FND") tried it out and it led to a substantial improvement of the situation. First of all, the label has to be removed carefully using the hair dryer method. After that, the label needs to take a nice, long bath in stamp gum remover to get rid of all the residue on the label without damaging it. It takes about half an hour to an hour, but in some cases, a longer exposure will be needed. After the procedure, the treated label needs to be rinsed in lukewarm water and dried. Then it's time for another bath, this time with stain remover to get rid of most of the dark blotches. And that should result in a pretty nice looking label that is ready for re-attaching. However, refrain from using superglue or other acid-based adhesives, as they will not only cause more stain down the years, but probably destroy the label for good in the process. Ordinary glue sticks may be a far better option. But there are also glues that are acid-free, dry clear, do not bleed through, won't yellow and are

labeled archival-safe. They are not the cheapest option, but certainly a good thing. However, there is a more ecological way. AtariAge user "No-frills100" states an interesting alternative: "In terms of longevity wheat starch paste is totally neutral and is easily reversible, in case you ever need to reopen the cart."

For purists, Actiplaque is something that they are most likely willing to live with. But as retrobrighting became a thing over the last couple of years that more and more people tried out, relabeling old and ugly labels might also grow in popularity. Not amongst collectors who want to keep their games original in every sense of the word. But people who like to display carts on their shelves might want to make the best out of them and replace or restore the labels. So far, it has not become a common practice – but for how long? As the Actiplaque effect not only affects Activision games, but also can be seen on old Atari and Epyx game cartridges, to name a few. And it's not even restricted to Atari carts, as it can occur on NES labels as well. With enough time passing by, maybe even N64 carts will at some point show signs of this, even more so maybe because of their even thinner paper labels. In the end, this "disease" shows the age of a game and has a somewhat authentic look to it. But it's not bad to know how to tackle it, if one should choose to do so. We'll see how big of a thing this becomes in the future. (bk)





After 30 years,  
there has to be justice.

# OUTRAGE



[outragegame.com](http://outragegame.com)

1990 - 2020

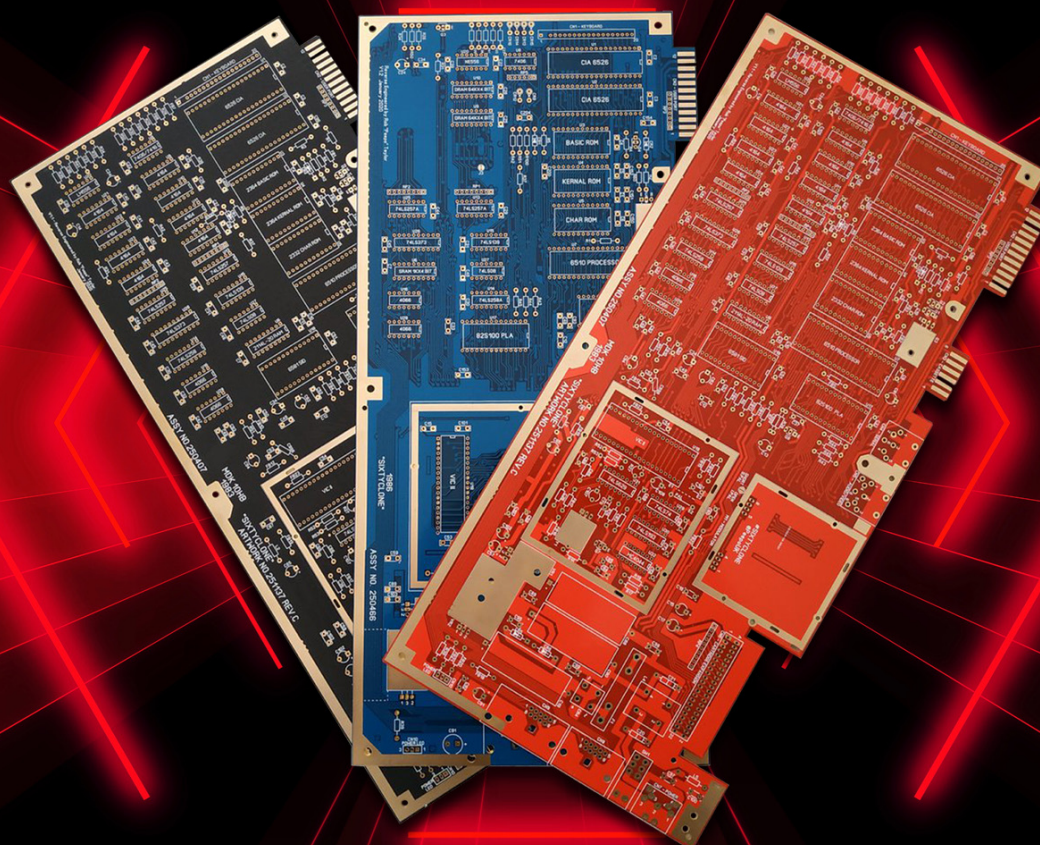
PROVISION

**COSMOS**  
DESIGNS

PSYTRONIK



TIME TO KILL? BUILD YOUR OWN C64 FROM PARTS



With winter around the corner, many of us will find some time to finally start something we've always wanted to do. Like knitting a sweater, pottery, finally read that book that you got for your last birthday or maybe, just maybe, do something related to your favorite pastime, but in a different way. Like building a new Commodore 64 from scratch. Yes, why not? An electronic tinkerer who goes by the name of "Bob's Bits" had redrawn the most common PCBs of the good old breadbin for this purpose: 250407, 250466 and 250469, Through his Tindie page, he sells reproduction board of all of these in the colors

red, blue and black. Sorry, no green apparently. Bob's reason for making this was to have a replacement for boards that actually were damaged. And while the trusty old PCBs used in 64s are pretty tough, it is nice to have a spare part if it is needed. The replica boards are of the same dimensions of the originals and can therefore be used as a direct replacement to the original PCBs. But even more interesting: It allows for a completely new machine to be made. Instead of moving all components from an original board to the replica board, you can buy all the capacitors and resistors new. Parts that are no longer available like cus-

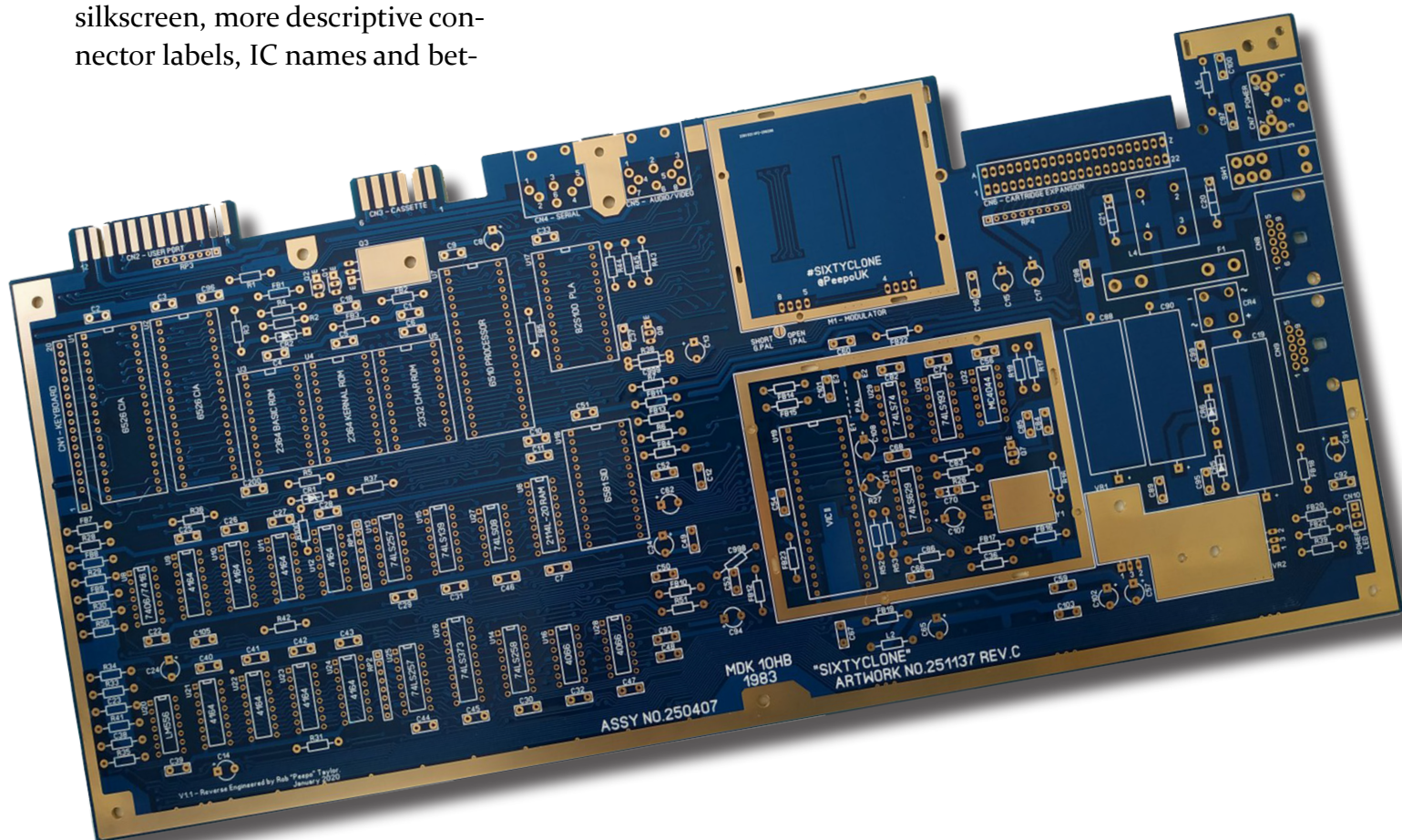


tom chips such as SID or PLA can be replaced with more modern alternatives, like SwinSID or ARMSID in case of the precious little soundchip, and GAL-PLA for the original PLA. However, depending on the board revision you choose, some chips are harder to come by. While the 8701 clock generator also can be replaced with modern alternatives such as the SmaCK (SmallClocK replacement), the video chip has no surrogate to date. The same applies for the 6510, although something is in the works over at Forum64 with regard to this – but it may take some time till it will be broadly available.

The quality of the board is pretty great. They feature an improved silkscreen, more descriptive connector labels, IC names and bet-

ter placed component labels, were manufactured using modern PCB manufacturing techniques and materials and have separate holes for R38 and it's accompanying capacitor so they no longer need to be stacked on the 250407 board.

Next to the board, people can also find resistor packs, electrolytic capacitor packs, resistor networks, replacement power switches, and other components directly via Bob's Tindie page. Prices start from 35 USD plus shipping from the UK for the board itself. Additional items cost extra. But it is neat to be able to get nearly everything you will need to build a new C64 from one location. (bk)





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# WEARABLE

YOU'RE LOOKING ABSOLUTELY MAGNETIC TODAY





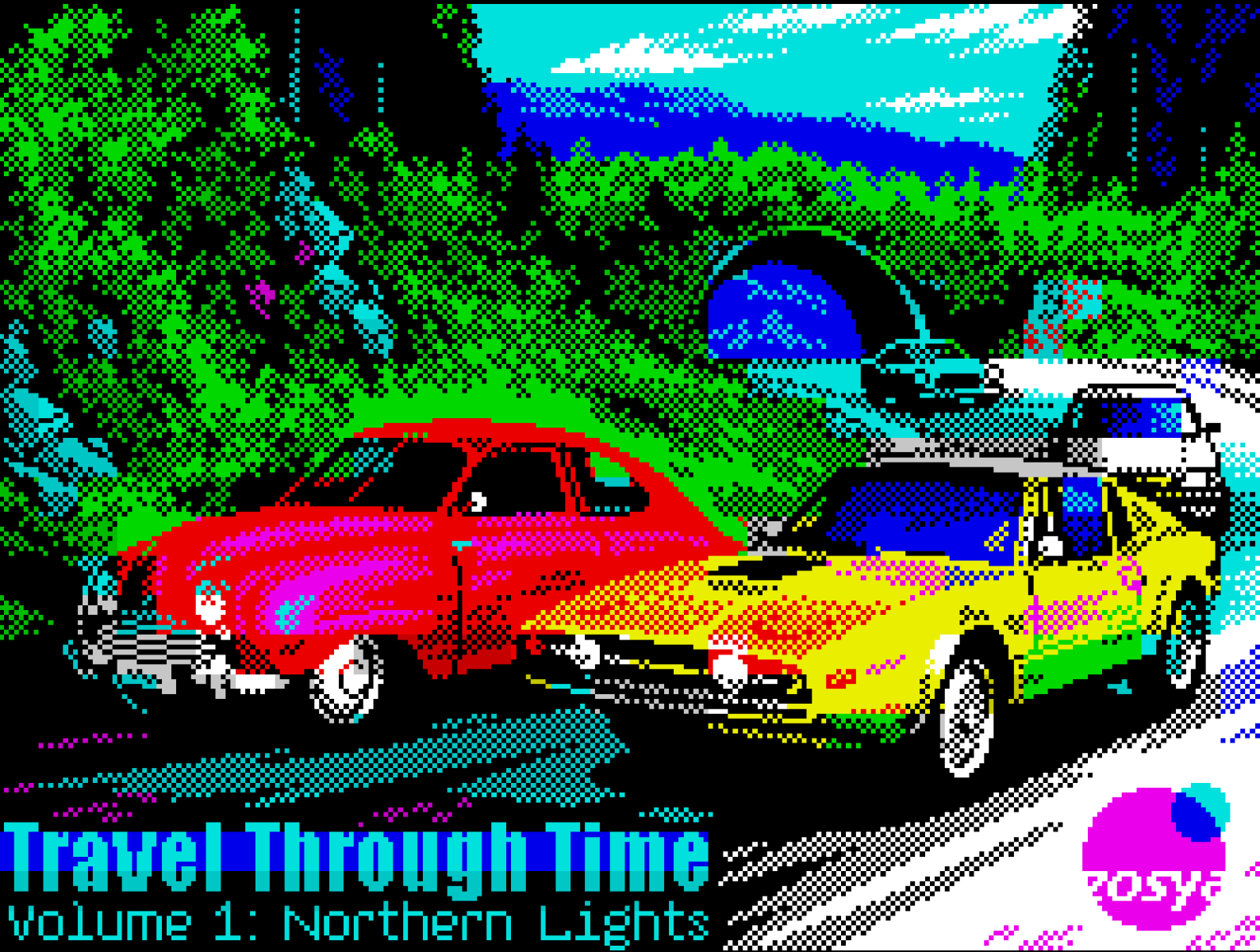


Photo: pexels, pixabay.de

How close are you with your cassettes? No, really. Ever thought of using the magnetic tape as a material to weave pullovers or bags out of? What do you mean, that is absurd? Tell that to Rehyphen and its founder, J.J. Chuan. “According to a press from MIT, there are 56 million kilograms of plastic used to make physical cassette tapes since it first introduced to the world in 1963. I want to reimagine a new way of exchanging music by addressing our global waste issue and transform it into another new medium that inspires the global community”, she says in an interview on the website [rehyphen.org](http://rehyphen.org). We can only assume that all the tapes used for computer games may have been thrown into the lot there. And so Rehyphen upcycles old tapes, of which there seem to be plenty, into fashion or art. Ever wanted a portrait of Bob Dylan, The Beatles or Simon Garfunkel woven out of old tapes? Rehyphen got you covered. You can also have your family portrait made out of that stuff or buy a gold clutch bag to show everyone how deep you are into cassettes while being stylish at the same time. This is a rather unique approach that is as interesting as it is strange. There is a certain hipster attitude to this that might not make it very appealing for the whole retro world. But the idea itself is kind of funny, and some things they come up with look pretty nice indeed - except for that one bow tie. Go look it up for yourself. (bk)



TRAVEL THROUGH TIME NL (ZX SPECTRUM)



## Travel Through Time Volume 1: Northern Lights

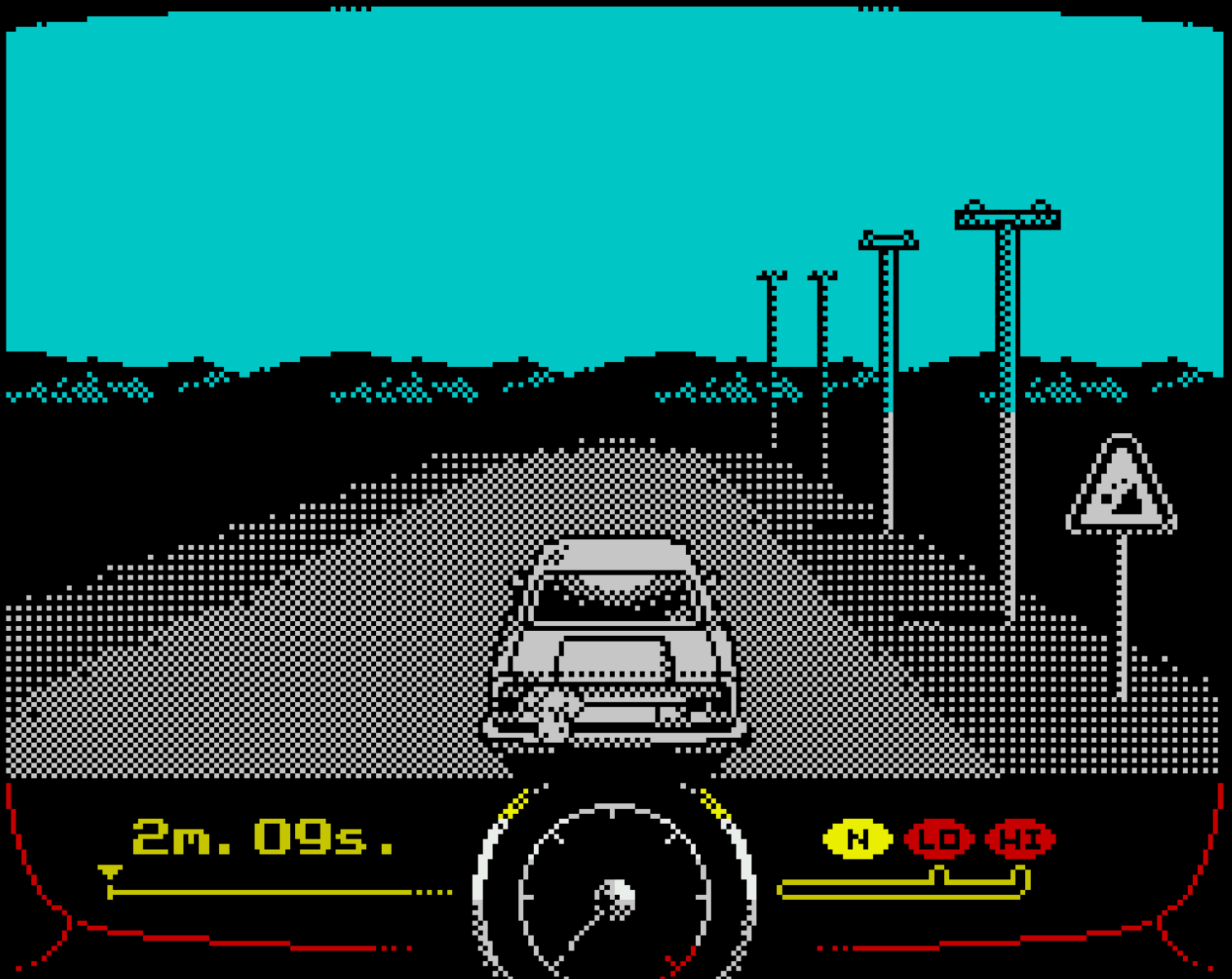
You might think that racing games and the ZX Spectrum might not be a great match. In that case, you might be very mistaken. “Travel Through Time – Volume 1: Northern Lights” by the Zosya Entertainment shows how it’s done. And honestly, it might be pretty hard for another racer on the platform to surpass this one in the near future. It’s not only about cars, it spans over the decades, giving you a feeling for

the development of automobiles and an insight into the life of one family. It’s indeed a game with a story and cut scenes that separate not only the different missions, but also the decades. Beginning in the 50s and ending in the 80s, you get to play 6 different cars and various race types such as challenge, time trial, duel, checkpoints and the very relaxing “just drive”, where you can just take the car for a ride in your



own speed. And there is a lot to see next to the road: Pretty impressive buildings passing by or even driving under a bridge or through tunnels with all the dynamic shadows going on will make your jaw drop. This ZX Spectrum game actually looks really amazing. And it plays well, too! You really get the feeling of steering some old Saab from the 50s, slowly accelerating and coming to speed. The cars handle differently enough

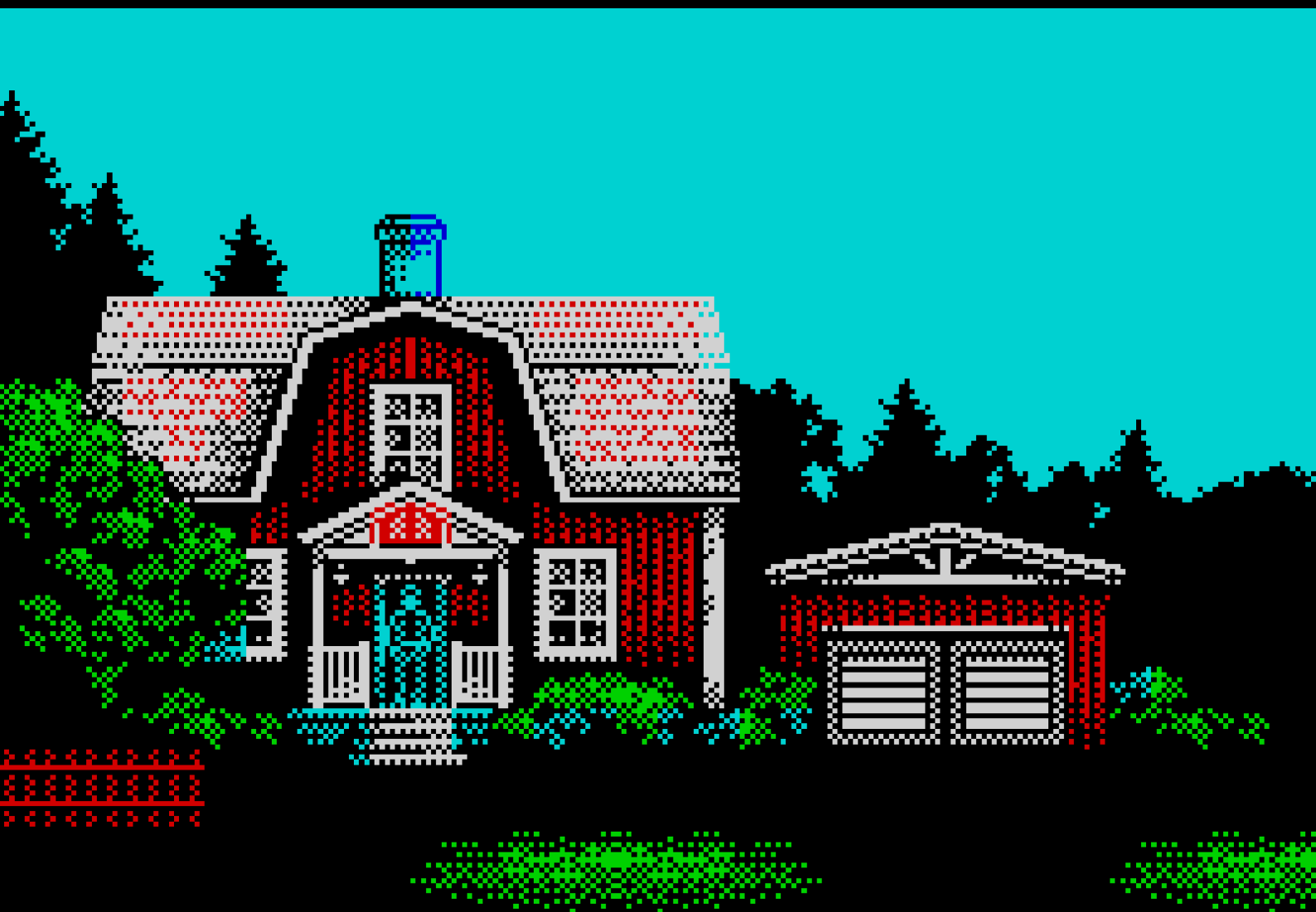
for you to notice and enjoy. Not one of them feels off. And because the polish of the game with regard to visuals and sounds, it almost plays like a visual novel thanks to the story part, although some driving skill and practice will be needed to make it through. Speaking of making it through: That might take you well over two hours until you get to the end. A pretty good length for a Spectrum racer, wouldn't you say? The





story unfolds slowly, but is knitted in a way that makes it interesting. It has a very grounded, down-to-earth-feel to it, maybe because of the dialogues. Yet sometimes a few cheesy lines will make you smile. Like for example when Sven, who is the main protagonist for a long time, and his uncle Björn talk about how fast time goes by. Sven, who's doing all the racing, has to say of course: "Time is the opponent that

I will never overtake." Sure, it's true, but also a bit over the top. But such moments are few and far between. What Northern Lights accomplishes is a setting where you get more invested into the story the more you progress. You're driving not against the clock just to win, your victory – and your losses – are the real driving force here. At some point, you might even start to care about the family story, although it's not





too deep, of course. But it gives the whole racing thing a meaning and pulls you in in a way that not many racing games can. That is quite an accomplishment on any platform. It is what makes Northern Lights stand out and sets it apart from other games of the genre. Combining that with the great graphics, sound and music makes for a rather unique experience. But even if you don't care about the story – and

you can skip all the cutscenes if you wish – you get a technically impressive racer that will keep you coming back again and again from time to time. Passwords make it even easier for you to get into the driver seat of the era you prefer. The missions are diverse and fun and the best of all: You can download the TAP and DSK image files for free. Although you might consider a boxed copy for only 14,99 GBP. You'll find it here. (bk)







Every so often, a game for a vintage system comes out that really shines so bright that you might wonder: “How did they do it?” And right after that: “Why didn’t anybody do it before?” Well, in the case of the Atari XL and XE computers, that game certainly is Final Assault. It is nothing short of amazing what the programmers did here. Basically, this is Doomsday on your Atari from 1979 – if you have 64k. But seeing something that can only be described as the 8bit Wolfenstein or Doom is pretty eyeopening stuff, speaking for the quality of the hardware at work as well as for the skill of the talented programmers who did this: Robert ‘Globe’ Pecnik did the coding and graphics, Marek ‘Marco’ Chorvat tested and provided additional support and last

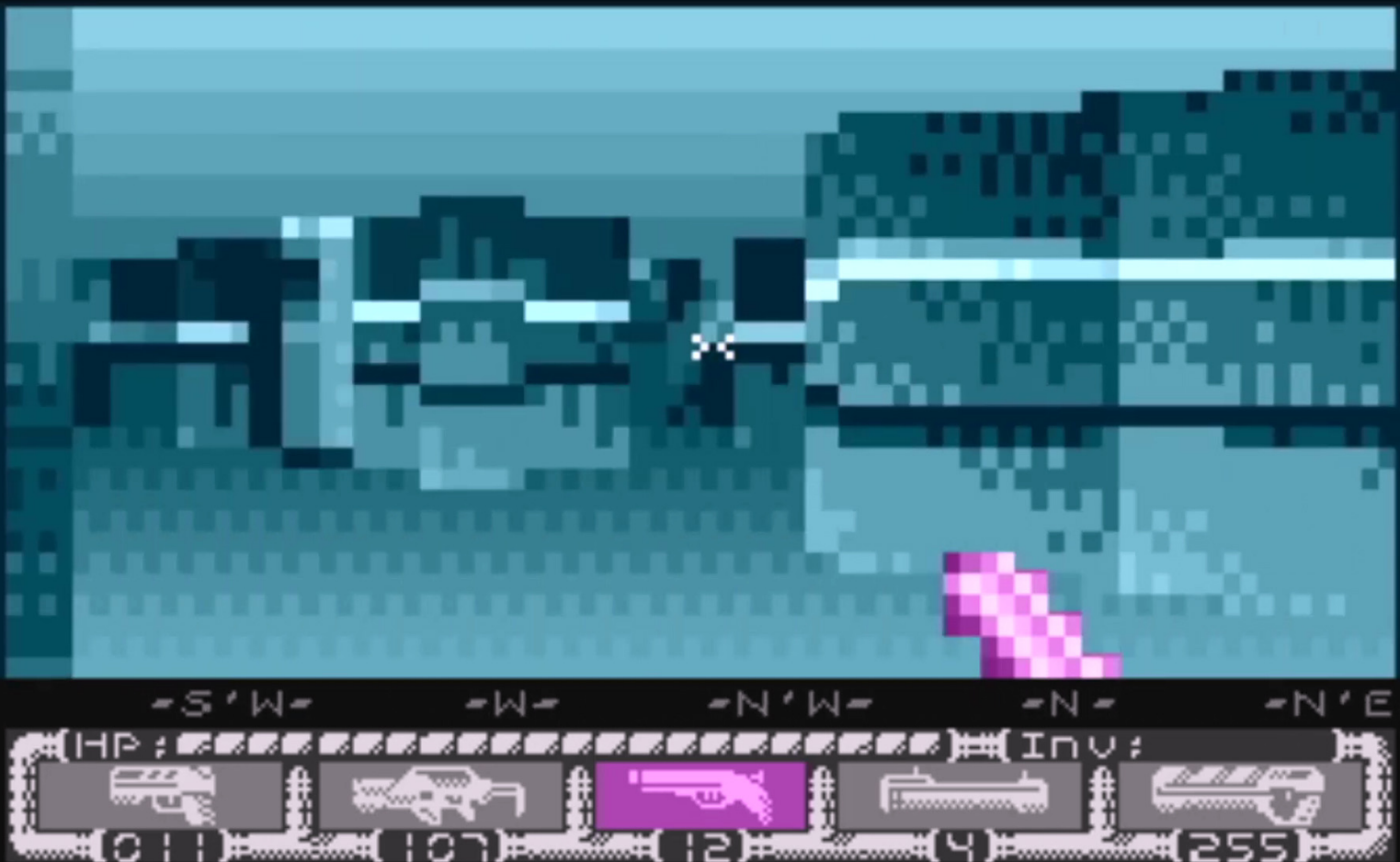
and certainly not least was Marian ‘Goldmaster’ Vybostok responsible for the great music and hardware support. The game works on PAL and NTSC machines alike, showing off an impressive raycaster engine running at 25 or 30 fps respectively. It features animated textures (something even some 64bit Jaguar games lacked), a lightning system, a compass, an automap and breakable walls. Yes, that’s right. Some of you might remember that it took until the Frostbite Engine of “Battlefield” to destroy the environment on a bigger scale, and how much fuzz that stirred amongst gamers. Well, this is an 8bit machine, so this game sporting destructible walls while not slowing down is nothing short of incredible!

So let’s dive into it. What is it all



about? As it turns out, you are a cybernetically enhanced human super-soldier, leader of the 31st Augmented Force Recon Squad in the year 2099. Serving under Central Command of the United Humanity Armed Forces, a coalition of countries fighting against the A.I. onslaught. (Rise of the machines, anyone?) Your job is to infiltrate an old research facility located in Munich (of all places) and search for the KEY, a chip serving as a safeguard against A.I. running amok that could help win the war. To fulfill this mission, you have five different

weapons at your disposal: handgun, pulse rifle, shotgun, rocket launcher and BFG. Sorry, no knife this time. But it wouldn't help you trying to stab any sentry drones, so don't weep for too long. The title "Final Assault" comes from the name of the operation in-game that's underway: While you try to save mankind, infiltrating the research facility, outside one final assault starts, where man is throwing whatever he has left against the machines. After you clicked through the menu screens, the game will unpack for a couple of seconds before you start





your journey. Not knowing what awaits you, you peek around the first corner and already get hit by a small bot if you are not careful enough. There are three types of bots which differ in strength and one type of flying mine. You tackle them best by choosing your arsenal carefully. At start, naturally the handgun will suffice. But perhaps the weapon of choice is the pulse rifle as it can spit out a lot of rounds, deals great damage and can also store a large amount of ammunition. When enemies come too close, grab the shotgun. And for the really tough ones,

go for the rocket launcher. This is also the weapon that can knock down walls – but be careful: Once you fired it, it will take a pretty long time to reload, so using it in close combat situations with enemies that bombard you with shots might not be the best idea. And then there is the big f\*%&\$ng gun (bfg) with its concentrated energy bolts that will vaporize every bot in its path till it hits a wall. Its explosions can break damaged walls, too. So you start out with five powerful weapons – time to storm the facility guns blazing and show them ro-



bots that they're nothing more like bulky, aggressive calculators, right? As Arnold used to say: "Wrong!" Don't do it. There is some strategy needed to make it through, making use of the skills and tools you have brought along. For example: If you run around a corner and suddenly see a flying mine, it will be too late, as it will explode through a proximity sensor. Good thing you have one, too: Hold Space and press Start to activate yours. Now you'll hear faint clicks when mines are nearby, getting faster as they come closer or getting slower as they get farther away from you. As for the bots: They patrol the area and will need to power up their weapon systems if they spot you, giving you some time to react accordingly. A bit of difficulty comes from the fact that bots can on occasion fire through walls if you stand too close to them, thus dealing damage you did not deserve. And you can't hit back. In these cases, it is best to get away from the wall as fast as possible into a safe spot. You will not only find ammo throughout the 16 sectors you must explore, but also medkits, switches to activate doors, terminals that interact with specific keycards, barrels, some of which you can check for useful stuff, others you can shoot to damage nearby enemies with the explosion, and teleports. For an 8bit game, there is a lot to explore and a lot going on. "That's all well", you may say, "but does it play well?" The

answer is yes, it does. While playing and FPS with a joystick still has a weird feeling to it, you get used to it pretty fast. Switching through your weapons with 1-5 is the same as in any other FPS you might have played before, and you will be delighted that you can also strafe by pressing Z or X. As the framerate is so decent, you're in for a great ride with this game. Adding to the atmosphere is not only the way you have to play, carefully hearing out for beeps and progressing rather slowly, but also the silence around you. Hearing those pesky beeps getting faster and faster gets your attention. Shooting down the occasional walls also adds to the experience. Solely hitting the bots as precisely as you might be used to with other FPS is a bit tricky, but then again, this is an 8bit shooter. Graphically, the game uses a low resolution mode, looking a bit chunkier than you might expect, but you get used to that pretty quickly. The decent framerate helps a lot, and it is impressive to see the lighting effects on those walls. It is not an easy game though, but there is a lot to explore and fight against. The automap helps immensely, and overall the group did a wonderful job of making a insanely competent game out of what may look like a nice tech demo in the screenshots. You have to play it to believe it. It might very well be the best game of 2021 amongst all platforms – so go get it. It's available for free download over here. (bk)

ROGER THE PANGOLIN (ZX SPECTRUM)



What if Sonic would be in a game like Trailblazer that would unravel like it's Halo? That seems to be the question programmer Jason J. Railton was asking himself. The result: Roger the Pangolin. The title screen looks rather familiar, and Roger himself either looks like a distant relative of Sonic or like someone who really tries hard to be like the blue hedgehog. Being a Pangolin, he shares an important feature with Segas mascot: he can curl up and roll around. Not too fast, but fast enough to make it difficult

for the player to guide him around obstacles and traps on the enrolling playfield. The game plays pretty much like you would expect from Trailblazer, but compared to that classic it plays out a bit more fair, as one can actually see what's coming ahead a bit earlier due to the Halo-shaped world. There are patterns that slow Roger down, those who speed him up and some tiles are missing, leading to certain death if one doesn't time his jumps correctly. While all of this is happening, a bit countdown ticks down, stressing out



players who already struggle with bringing Roger to his destination. If you want to take your time – play chess instead. This game takes you for a ride on a steep difficulty curve, maybe even cursing and putting your joystick aside, but then come back again and just give it one more try. What Jason Railton and level designers Jim Waterman, Karlos and Einar Saukas created here is a very intelligent reimagining of a tried and true gameplay idea that just introduces enough nice touches to

make it way more interesting than Trailblazer was once the novelty of the 3d-ish look wore off. The graphics and speed here are impressive, the sound is more or less the bare minimum you would expect from the Speccy.

All in all, Roger makes for a great little game you can pop in and play for a couple of rounds just to distract oneself from ... well, there is certainly enough out there from which you want to be distracted. The game is free, grab it from here. *(bk)*



CORSAIR TRAINER (CPC)



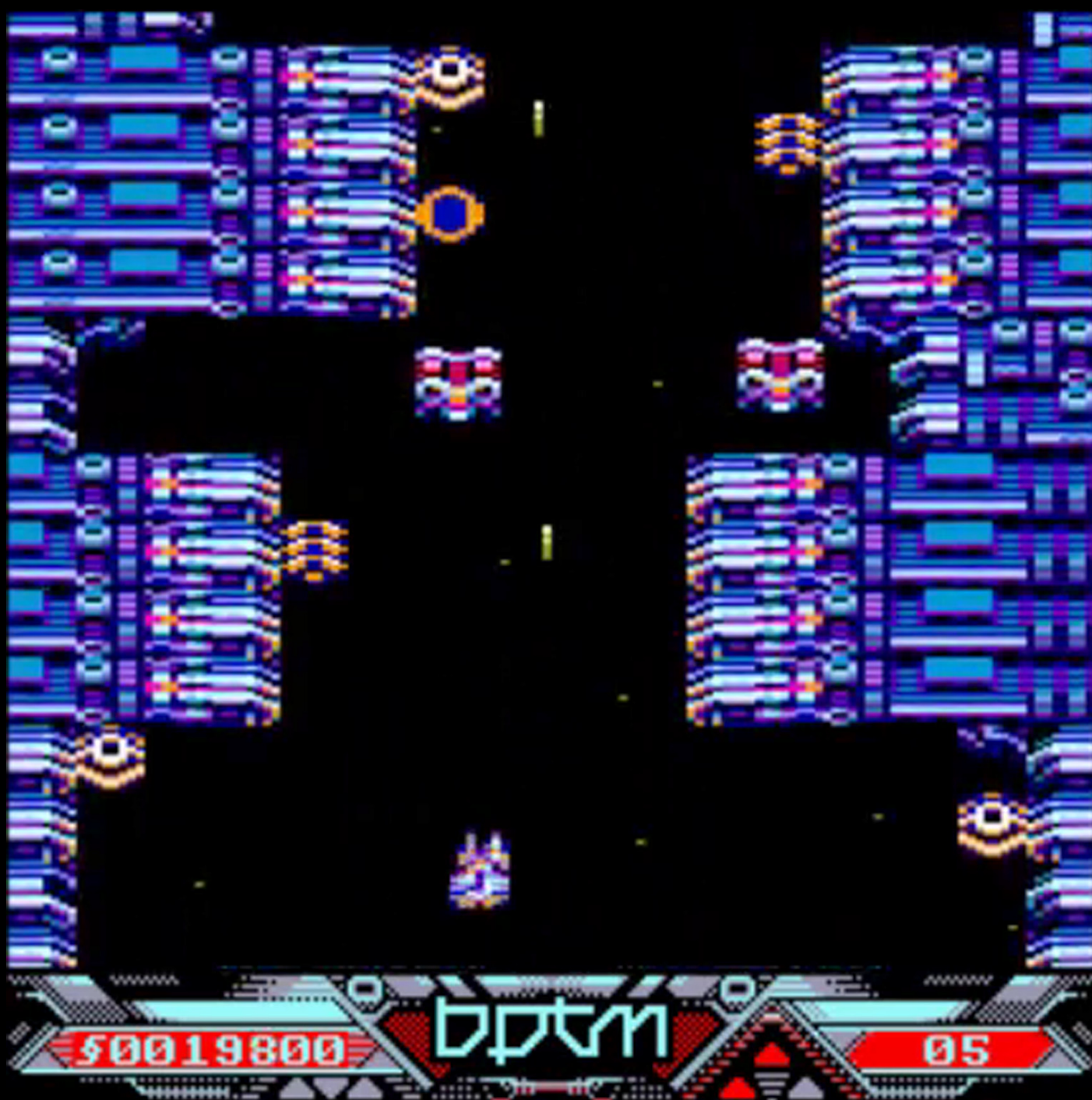
There are those who believe that shooters need to be easy and that game demos are not worth mentioning until the finished game comes out. Well, Corsair Trainer doesn't give two shi\*\* about that. It is difficult, unforgiving, amazing to look at, nice to listen to and contains more fun in one level than even some classics can pack into several levels. It's a 50Hz vertical scrolling vertical shooter with sprites moving at pixel accuracy. And it is, of course, just a demo for a full game that will be released some day. Or hopefully so. A group called Bitplane Technomantes is behind this blueish space shooter with a pretty unique look and impressive graphics. There is no

in-depth story yet to be read, just a scroller notifying the player that what he just plays is a demo, released for the demo party Assembly in 2020. One player, one ship, one level, one endboss. The fight lasts about five to six minutes, nearly half of which account for the boss battle alone. As it stands, it is a quick little game for 64k Amstrad CPC users, and it makes one want more. Technically, it also impresses with a smooth scrolling, something the CPC is exactly known for. Coder Axelay has proven many times that he can pull off some great stuff in collaboration with pixel artist rexbeng. Relentless, a 16k horizontal shooter for the Commodore 64, showed a similar



art style, while Dragon Attack on the CPC proved to be a basic looking yet hard as hell bullet hell shooter. Corsair Trainer takes some inspiration from both, artistically and game-playwise, and creates something of its own, more to the liking of those

who played (and liked) Radiant Silvergun than those who enjoyed Xevious. There is a lot to like here, so go on and take a look for yourself. The game can be downloaded for free at places like pouet.net, so there is no reason not to try it. *(bk)*





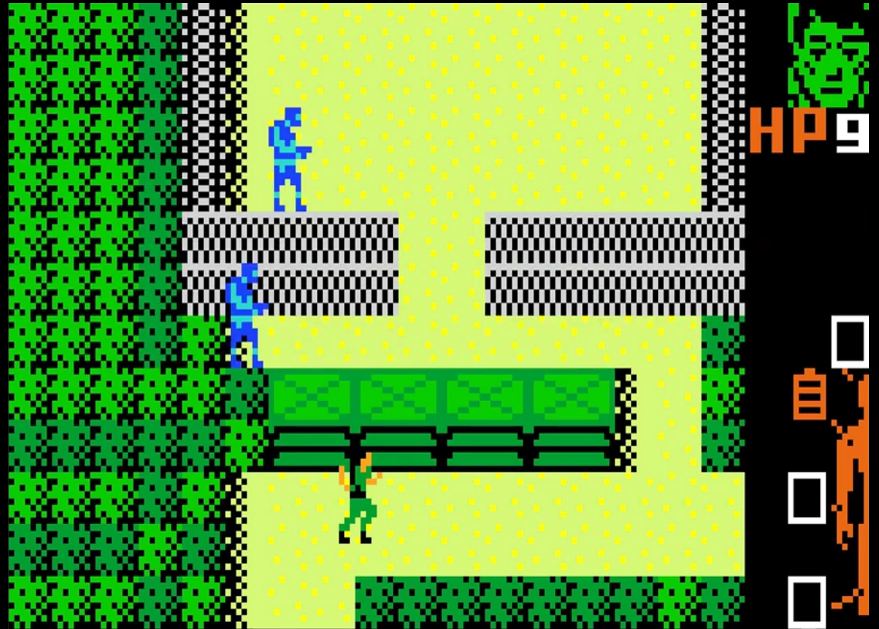
The Intellivision lacked a few genres of games. One in particular: a stealth action game. Carlos Madruga thought that this needed to change and began work on “Infiltrator” for the IntyBASIC Contest 2020. And it is a great example not only what can be done on Mattel’s old console classic, but how powerful IntyBASIC is. The inspiration for Infiltrator is pretty evident. Carlos explains: “I am someone who started on the Intellivision as a kid, but then moved on to the MSX as a computing platform in the late 80s. Because of my past experience with the original Metal Gear on the MSX, I’ve been a fan of games incorporating stealth elements ever since. As I grew older and eventually reconnected with the Intellivision as a hobby, I eventually learned how to program it. Writing Infiltrator came from my interest in connecting my passion for both the MSX and Intellivision platforms.” However, this is not a port of Metal Gear, but an original game with

levels that certainly contain some elements you will recognize if you played MG, but also elements that are pretty new. For example, there is a screen in the first level, if you want to call it that, where you have to sneak around some tanks, but then you’ll have to fetch a suba gear to reach the next part by swimming through a river. Pretty neat. Like in Metal Gear Solid, you play as an elite soldier who is severely outnumbered and outgunned. It’s not his style to shoot his way through, so his objective is to complete his mission while basically staying out of sight. The game states with tongue-in-cheek attitude: “You are equipped with an experimental cloaking suit, which is definitely much fancier than let’s say ... putting a cardboard box over your head to hide from enemies”, mocking the rather crude stealth option players had in the fifth installment of the game.

Graphically, there is a lot to enjoy as well. The game looks nice with vibrant colors, nice animations



of the player sprite and enemies. Objects like crates and tanks look a bit blocky, but they're definitely recognizable. With all the graphics, sounds and music, Infiltrator uses up 92 Kilobytes in total. For comparison: The most early Intellivision games had 4KB. World Series Major League Baseball was amongst the biggest of the first lineup of more than 100 games: It contained about 20KB of data. The Bad Apple demo, which got released for pretty much every system under the sun, uses 400KB on the Intellivision. So Infiltrator can be considered quite a substantial title in this regard. Having mentioned music and sound: The game features music by "Nyuunderer" using ECS extra sound channels and also includes digitized sound effects by "Artrag". Fun fact added by the programmer: "Infiltrator is the first Intellivision game to incorporate a digitized lofi version of the famous "Wilhelm scream". The sound is played when you die." It's actually fun to collect power cells and cloak oneself to sneak by some enemies. However, these power cells won't last forever, and the player will notice this by appearing in a white outfit instead of the regular army-green one. Enemies will generally mind their own business as they patrol their assigned waypoints. But once you walk into their line of sight, they will become aggressive and chase you. Enemies will also notice if the player leaves footprints on the floor after walking out of something



wet or bloodstains when injured, adding even more finesse to the gameplay. All in all, Carlos Madruga really did achieve a great game on the platform that is fun to play and looks and sounds great. If you are into Intellivision, you need to give this one a try. Download it for free from the AtariAge forums here. (bk)

## RISE FROM YOUR

GHOSTS 'N GOBLINS (VZ200)



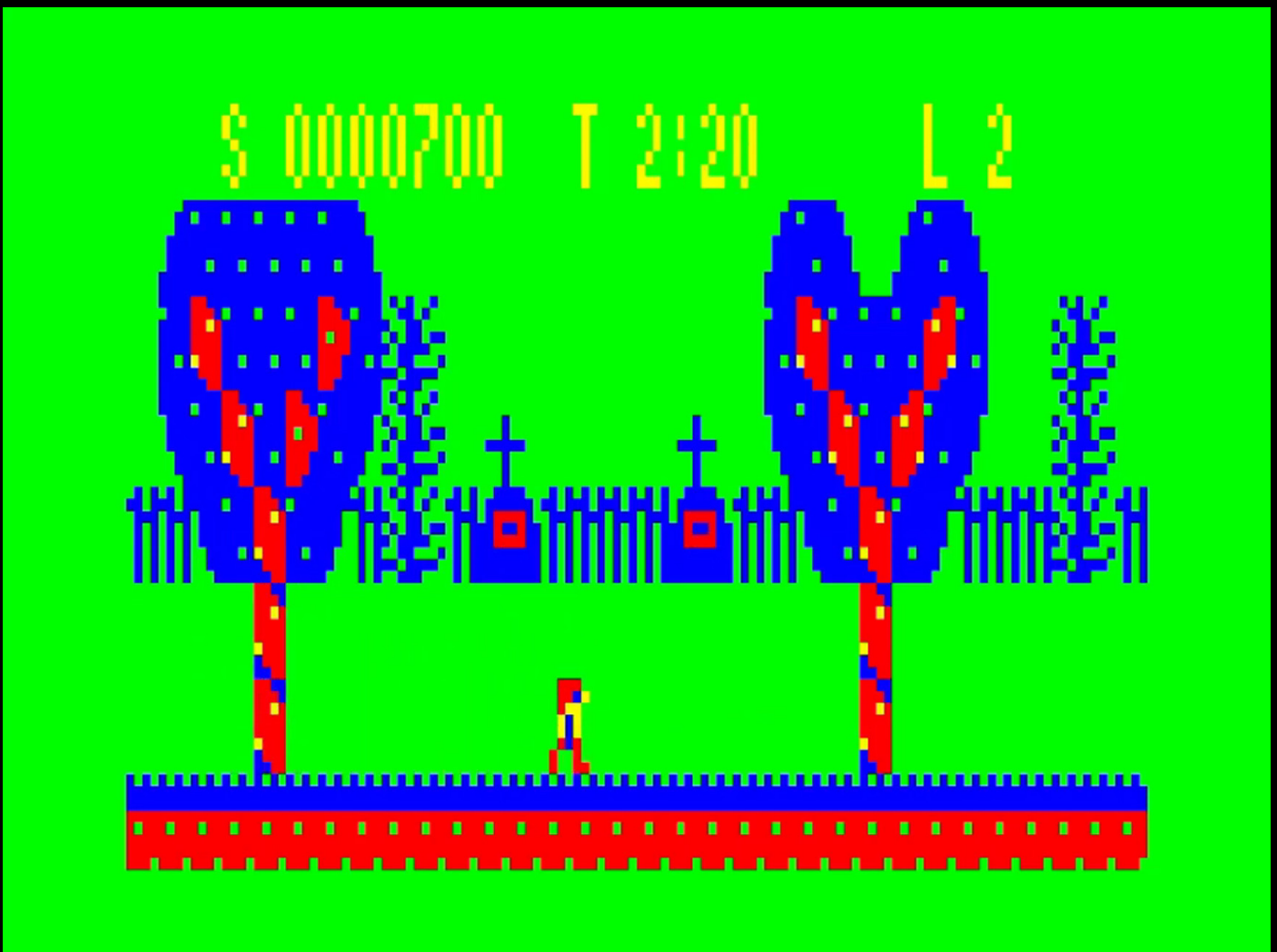
**G**hosts 'n Goblins was ported to many consoles and home computers. Most prominently, it got released on the NES, where it went on to sell more than 1.6 million copies worldwide. But the arcade smash hit of 1986 sold well on other platforms as well, including Amstrad CPC, Commodore 64 and MSX, but received even ports on the Sinclair ZX Spectrum and the Commodore 16. One home computer the game did not grace during its heyday was the Vtech Laser 200, or VZ200. The machine was known under differ-

ent brand names worldwide and had some success in Australia and New Zealand, but rather limited success in Europe and even less in the US. However, this little home computer that was discontinued one year prior to this game's release has a cult following to this day. It is a pretty limited machine, but like so many other 8bit computers, that's where its charm comes from. And in 2021, Jason Oakley did what was long overdue: He ported Ghosts 'n Goblins over to the VZ200. The result is pretty impressive for the little



machine. Green is the predominant color to be seen onscreen, and that's for a good reason, as Jason explains: "Green is the standard background colour. There's two pallets: Green background, red yellow and blue foreground. Or: Buff background and cyan, magenta, orange foreground which is hard on the eyes." For this very reason, he opted for a green sky and blue trees. It gives the game a very special look, something that could well work on a Dragon32 – which, like the VZ200, has some TRS80 DNA. The basic gameplay

is well intact and every player will recognize the game instantly: the graveyard in the background, the timer, zombies, ravens, ghosts and of course the infamous red devil. There is no music while playing, but sound effects (for shooting your swords, hitting an enemy or collecting items). It plays pretty well all things considered and is really a very decent port of the game on a rather obscure platform for many collectors. You might want to grab the file and give it a spin on your emulator or maybe even on your real VZ200! (bk)



JASON OAKLEY, BLUE BILBY SOFT



Photo: Jason Oakley

The VZ200 does not receive that much attention, as most of the retro spotlight shines on C64, Atari and Sinclair. Which is fine, but it's always great to see all the other machines getting nice stuff as well! And Ghosts 'n Goblins is certainly something that makes people take a peek at the little machine. KILOBYTE talked to the programmer, Jason Oakley.

*So first, let me ask you what your connection to the VZ200 is, was this your first computer?*

The first computer I used was a Microbee - an Australian Z80 machine. They were available at my high

school. Next was the school's Apple ][e. They also had an Exidy Sorcerer. My parents bought me a VZ200 for Christmas in 1984. I had Hoppy (a Frogger clone) and Ghost Hunter (a Pacman clone). Games loaded from the VZ datasette quite slowly as things were in those days, but I loved everything about it. It came with dual joysticks. I had a small "Princess" brand TV which was only black and white. Sometimes I could hook it up to the colour TV in the lounge if my parents were not using it.

*Can you tell me a bit more why the VZ was relatively popular in Australia?*



The VZ200 was an affordable computer. It started at about AUD \$199 then dropped to \$149 and finally \$99 once the VZ300 upgraded model was released. An electronics franchise named Dick Smith Electronics - after the owner - was in most cities and towns. I got to know the owner of the franchise in my town. Most arcade style games were made by one guy who named his company "Dubois & McNamara" after himself and his wife. He also wrote games before the VZ for TRS80. I scored an interview with him a couple of years ago and it's available on my BlueBilby.com website. We didn't really have much of a fanbase for the Spectrum, but the Commodore 64 was very popular in Australia.

***How large of a user- or fanbase do you estimate there still is for the machines? I see on the web that there are still active user groups around.***

I run a Facebook group called "VZ200 VZ300 Laser210 Laser310 fans" which has 178 members currently. Most discussions happen there. We did have a Yahoogroups (formerly eGroups) mailing list but Yahoo have shut that down now.

***Do you also collect for the VZ and if so, how many machines do you currently have?***

I currently have a VZ300 computer with joysticks, a datasette and an

SDCard reader which also doubles as memory expansion.

***What makes programming on the VZ today so fascinating?***

For me, it's the nostalgia. There's a lot of games I played on other platforms which were never ported to the VZ computers and I enjoy making them available for other fans. I always have a desire to make something new and love the challenge of making them work on 128x64 pixel screens with only 4 colours.

***Recently, you ported Ghosts 'n Goblins to the VZ. But why did you choose this particular game?***

I really enjoyed playing Ghosts 'N Goblins on arcade and on my Commodore 64 back in the day. It's a fun game and I thought it'd port well to the VZ - albeit in a flipscreen format using the Multi-Platform Arcade Game Designer (MPAGD) I helped port to cover the VZ platform a year or so ago.

***Porting GnG sounds like a tough thing to do given the hardware limitations. Where does one start with such a task and what have been the biggest difficulties you encountered along the way?***

For most games I design a bunch of 'sprites' - the main player character and some enemies and the odd powerup or two. Next I design background blocks and platforms,

then add basic player and enemy movements. One of the biggest difficulties using the MPAGD platform is the limited number of events for the enemies, platforms, etc. There's 8 available so at times you end up re-using the one event and change the enemy behaviour based on which sprite is currently displayed.

***How long did it take you from start to finish programming the game?***

It was about a month, although I did end up taking a couple of breaks for several days when I got stuck trying to make something work properly. I find if I stop programming, do other things then come back again I have a clear mind. Sometimes the solution pops into my head while not even actively thinking about the issue.

***You are founder of Blue Bilby and focus on retro computer games for the VZ, but also released games for Sinclair and C64. Can you tell me a bit more about Blue Bilby, how and when it came to be and what your plans for the future are?***

Blue Bilby was originally created for iPhone/iPad/Android games. However, the market saturation and increasing desire for high-quality AAA games and the like on this platform turned me off the idea. Along with trying to make good-looking sound and graphics for those platforms.

Being restricted to the VZ, Spectrum or Commodore 64 colours and lower resolutions works better for me.

***If you met an 8bit computer enthusiast who is looking for a new machine to look into, how would you recommend the VZ?***

I'd say it's easy to begin with. There's no high expectations and there's not a lot of games ported to the platform so it's easier to make a game. The fans are very friendly and helpful so you can ask questions and get help without any problems. You can use MPAGD to make games with no real need to learn Z80 Assembly or program in C. There's also a GUI to let you design blocks, sprites, etc.

***For many retro computers, there is a list of devices one can use that emulate peripherals like tape and disk drives so one can use SD cards or USB sticks with images. How about VZ computers, are there such ready-to-use solutions for them as well?***

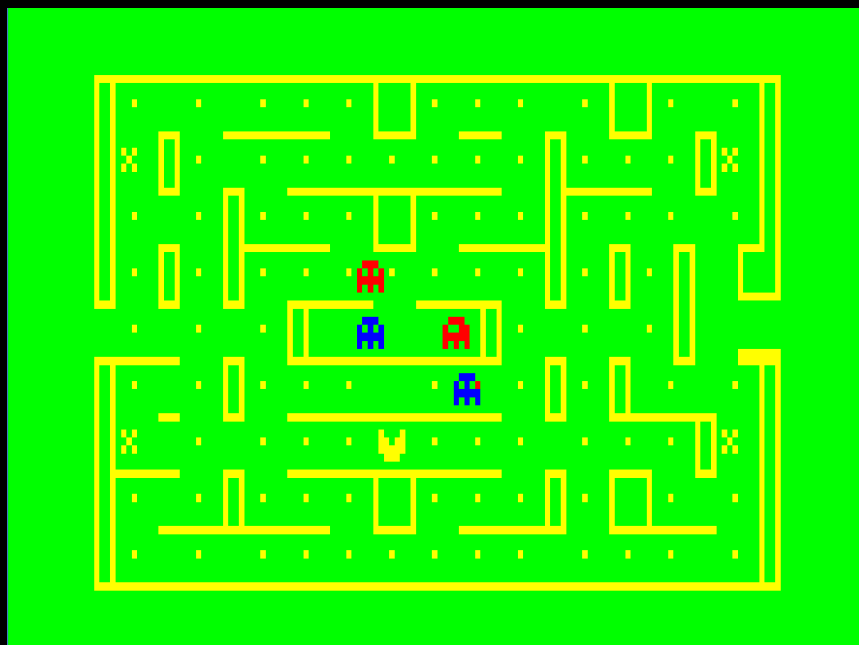
A guy on the Facebook group created a bunch of SDCard readers with full memory expansion. Many of us fans bought them. I got one in particular so it's easy to debug and test my games, but also I can fit a lot of games onto one SDCard and load quickly. He no longer makes them, but others in the group are working to take up the slack and build them again.



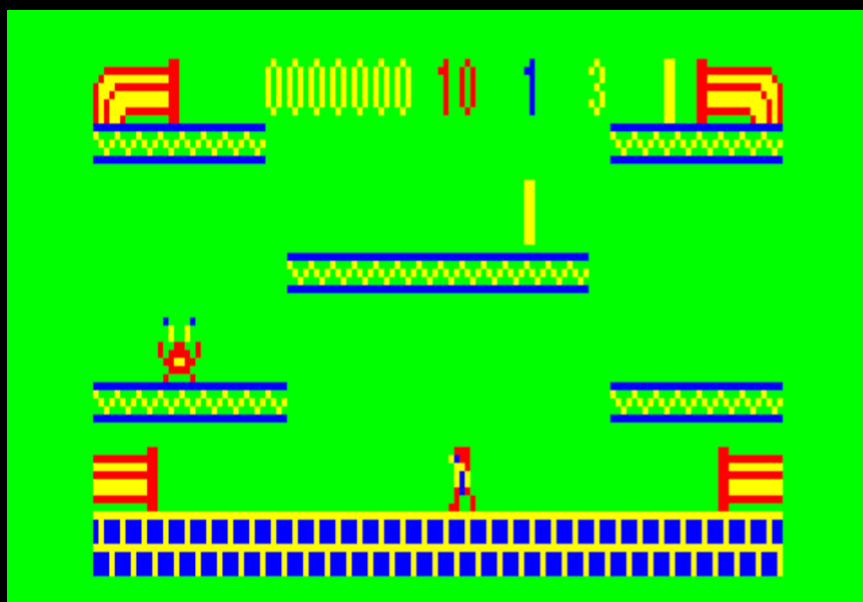
*If someone wanted to start playing on the VZ, what games would you recommend? What do you prefer, emulation or real hardware?*

VZ'Em written by Guy Thomason is the usual go-to for VZ emulation. He wrote the first VZ emulator years ago and is still very active in our Facebook group and improving his emulator and porting to other platforms. Fun games are: Arkaball (Arkanoid clone), Pipes (Mario Bros clone) and Ghosts 'N Goblins by Blue Bilby of course, Hoppy, Hamburger Sam (Burgertime clone) and Dawn Patrol (Choplifter clone). I prefer the real hardware but mostly it's just easier to launch the emulator.

*And finally maybe some facts about yourself: how old are you, in which city do you live and do you do programming in your spare time or in your job as well?*



I live on the Mid North Coast of New South Wales in Australia with my daughter. I'm 50 years old this year. My main job is in Internet Security as a Senior Abuse Technician. The team I work on creates algorithms and other code for anti-spam for many large companies worldwide.







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