

POPULAR

RETRO

ISSUE 01
WINTER 2018



THE C64 Mini

Tips, tricks and more!

PLUS:

Tim Chaney takes us down RETRO MEMORY LANE
(Commodore UK and US Gold)



THE WORLD'S BEST SELLING HOME COMPUTER — REBORN!

It's 1982 and a new home computer graces the scene. Out goes the silent black and white experience and in with 64KB of RAM, colour graphics, and synthesizer sound.

Roll forward 35 years and kick nostalgia into overdrive with the release of THE C64 MINI. A tiny

but perfectly formed officially licensed 50% scale replica of this much loved machine.

Featuring high-definition output via HDMI, a classic style joystick and 64 built-in games including classics like California Games, Parodroid, Nebulus, Impossible Mission and Uridium.

THE C64 MINI

FEATURES

- High Definition output at 720p via HDMI
- Pixel perfect display, with US/Europe display modes and CRT filter options
- Save game function
- 2 USB ports: plug in a USB keyboard and use as a fully functional home computer, or add a second joystick for 2-player games
- Supports software updates via USB flash drive

**RETRO
GAMES
LTD**

POPULAR RETRO

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Editorial

Welcome to the first issue of **Popular Retro**, a new nostalgia focused publication from Andrews UK Ltd, publisher of a wide range of retro themed titles across the globe in both digital and physical formats, from a wealth of authors.

The theme for this launch issue is THEC64 Mini, produced by Retro Games Ltd. It contains articles about upgrading THEC64 Mini firmware, using USB memory sticks with THEC64 Mini and using the new File Loader functionality introduced in firmware 1.1.0. There are also some fun items, including a word search, spot-the-difference and a crossword that are all retro games themed.

In addition, take a trip down memory lane with Tim Chaney formerly from Commodore UK and prolific UK games publisher US Gold, and also highlighted are a few modern era C64 titles that are keeping the C64 very much alive, thanks to the amazing and supportive online C64 community.

If you have any retro-themed content for a future issue of **Popular Retro** (which we intend to expand and publish on a semi-regular basis), please get in touch. It can be anything to do with retro and nostalgia, not just computer hardware and games. Until the next issue, enjoy and have a great Xmas 2018 and a Happy New Year!

RETRO GAMES LTD NEWS

THEC64 Mini Launches in North America

THEC64 Mini officially launched in North America on October 9th 2018. The Mini includes 64 classic games built-in, an HDMI lead, a USB power lead and THEC64 Joystick. This launch follows the Mini's successful debut in Europe earlier in the year. Apart from a slightly different games library, the only other significant difference between the two is the North American model outputs at 60Hz and the European at 50Hz.



October Firmware Upgrades

In early October 2018, firmware upgrade 1.1.0 was released for THEC64 Mini, adding the File Loader functionality. Subsequent upgrades addressed specific issues experienced by some Mini owners regarding USB memory stick detection and third-party controller compatibility.

The latest firmware upgrade at the time of writing is 1.1.4. If you don't already have this installed, please download the firmware file from thec64.com/support/upgrade

Future Firmware

Retro Games Ltd hope to deliver another new firmware upgrade before Santa arrives in late December 2018. Expect new functionality and possibly a present added to the CAROUSEL as well!

THEC64 Full-size!

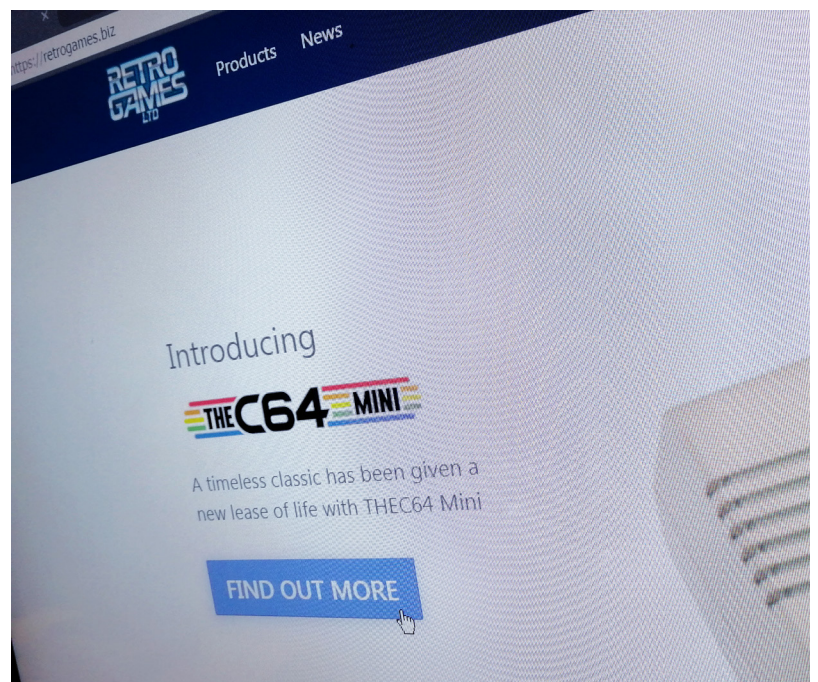


As some of you will already know, Retro Games Ltd are also producing a full-size THEC64, complete with a fully functional integrated keyboard. For a number of business and technical reasons, the Mini was put into production first but the full-size is still coming, just a little later than originally planned.

More details will be revealed in the near future.

New website

The new official Retro Games Ltd website recently launched at retrogames.biz, where you will find further information about THEC64 Mini, including the User Guide, Warranty, Programming in C64 BASIC, Firmware Upgrades and FAQs as well as details on future products. Every game supplied with THEC64 Mini has full instructions also available from this site, for both the North American and European game libraries. The previous thec64.com website also now redirects to this new home.





Why upgrade THEC64 Mini firmware?

written by Retro Games Ltd.

Tweaks, fixes, new functionality or new content are all good reasons to upgrade the firmware to the latest version. Using THEC64 Mini should be as enjoyable as possible and the upgrades are a way to improve that experience on a semi-regular basis.

Out of the box, European models run firmware build 1.0.1. The North American Mini is running firmware build 1.0.10. If you are unsure which build your Mini is currently running, switch on THEC64 Mini then go to the OPTIONS (spanner) icon underneath the GAMES CAROUSEL and select 'System information'. Now look for the 'Build' information.

All firmware upgrades are accumulative, so if you have not yet upgraded, you get all of the previous upgrades within the latest firmware upgrade file. There is also no need to look for separate European or North American firmware files, as the one file detects the model type during installation and applies the correct firmware upgrade automatically.

The latest firmware upgrade is always available to download from the official website at retrogames.biz, which is where you will also find full instructions on how to upgrade. These instructions are also included in the full User Guide, available to download as a PDF.

Tip: If your build information includes 'shield' then it uses the North American firmware. If the build information includes 'argent' then this is the European firmware.

SPOT-THE-DIFFERENCE!



The differences will be revealed in the next issue.

USB, memory sticks and THEC64 Mini

written by Retro Games Ltd.



Upgrading the firmware, running C64 program files from USB or saving and loading programs in BASIC on THEC64 Mini all require a USB memory stick formatted using FAT32 with MBR (Master Boot Record).

With most formatting utilities, MBR isn't explicitly stated as an option so it isn't immediately obvious if your USB memory stick has it or not. Thankfully, help is at hand! Here we explain how to format a USB stick ready for use by THEC64 Mini, beginning with a few general tips about USB devices and memory sticks in particular.

Choice of USB memory stick

We have no specific recommendations for which brand or capacity (size) of USB memory stick to use. Here at RGL we have tested a number of sticks made by well-known manufacturers as well as sticks that are unbranded. We have tested sizes ranging from 256Mb up to 64Gb and they all work fine when correctly formatted.

The USB icon

If running firmware 1.1.0 or above, a USB icon appears on the HOME screen to confirm that the memory stick has been detected, but this alone does not guarantee that whatever is on the memory stick will work on THEC64 Mini. If you insert a USB memory stick and the USB icon doesn't appear, then you know there is a problem detecting the memory stick.

USB PITFALLS

Before we concentrate on formatting USB memory sticks, now is a good time to discuss some of the factors that can affect USB memory stick performance on THEC64 Mini, when to insert them, their power requirements and other issues.

The HOME screen

USB devices must be connected and disconnected whilst on the HOME screen, where the GAMES CAROUSEL displays. Once running a game, THEC64 Mini only detects pre-connected USB devices. So, insert your USB memory stick whilst on the HOME screen.

Power Consumption

Some USB devices need more power than others do, and this can cause them to behave unpredictably when connected to THEC64 Mini if they are particularly power hungry.

If a USB memory stick isn't detected when inserted into a USB hub, try and disconnect other devices from the hub and then connect the USB memory stick again. We would always recommend using a powered USB hub with its own plug, rather than one that draws its power from THEC64 Mini.

If you suspect that power could be an issue, change the power supply unit you use with THEC64 Mini to one that delivers more than the minimum 5V/1A and see if USB memory stick reliability improves. Alternatively, try a different USB memory stick. Unfortunately, the power requirements of a USB memory stick are not always obvious when purchasing and manufacturers can change specifications and requirements at any time without notice.

Bad files

As you would expect, corrupt or broken files will fail to load on THEC64 Mini. Error-prone USB memory sticks can be a contributing factor. Thankfully, there are free USB-specific utilities available that can check the integrity of a USB memory stick for such errors. If the USB memory stick passes these checks, then source your files from elsewhere and then try loading them again.

THE USB FORMATTING PROCESS

You must format your USB memory stick on a suitable computer before inserting it into THEC64 Mini. Most computer operating systems (typically Windows, Linux or macOS) have an in-built tool for formatting a USB memory stick to the required standard.

Firstly, choose a USB memory stick that you are happy to wipe clean of all files and folders. Insert your chosen USB memory stick into the computer intended for formatting the stick. What you do next depends on which operating system is running on the computer.

Windows 10/8/7

(USB memory stick capacity up to 32GB)

If a window doesn't automatically display the content of the USB stick after insertion, press the Windows key and E together to open File Explorer.

1. In File Explorer, right-click over the drive icon for the USB memory stick you want to use. **Please ensure that you have selected the correct device before you proceed any further!**
2. Select Format In the 'File System' category, and then select FAT32. **Note that Windows will not offer to format a USB memory stick using FAT32 if the capacity (size) of the partition is greater than 32GB.**
3. We recommend that you don't tick the 'Quick Format' option. As a result, the format will take longer, but it checks for errors on the stick as part of the formatting process.
4. Select 'Start' to begin.

macOS

The following instructions apply to macOS High Sierra (10.13.6). However, they should apply to other releases but we can't guarantee that they apply to all releases of macOS.

1. After inserting the USB memory stick, a USB icon appears on the desktop. Now run Finder.
2. Select Applications > Utilities > Disk Utility, then select your USB memory stick. **Please ensure that you have selected the correct device before you proceed!**
3. Select the 'Erase' option. You can 'Name' the USB memory stick if you like
4. Select 'FAT32' or 'FAT' from the Format menu. If FAT32 is greyed out, select FAT instead. As far as this process is concerned, they achieve the same result

5. Finally, select the 'Erase' button to begin the formatting process.

Note that unlike Windows, macOS will format a 64GB USB memory stick using FAT32.

Linux

You need to know the root password for your Linux computer before you can format your USB memory stick using the guidance below.

With Linux, you could use 'gparted' to format the stick, but if you don't already have that utility installed, then to quote an old saying, it's like using a sledgehammer to crack a walnut.

1. The quickest and simplest method for Linux users to format a USB memory stick is to open a new terminal session and enter the df command
2. All available storage devices are now listed, but the only one that is of interest to you is the USB memory stick
3. Determine which item in the list is your USB memory stick. **Please ensure that you have identified the correct device before you proceed!**
4. We are using the example of /dev/sdb1 in the remaining instructions. Just substitute this with your own if it is different
5. Type `umount /dev/sdb1` and press Return. This unmounts the USB memory stick, ready for formatting by the next command
6. Now type `sudo mkfs.fat -F32 -v -I -n THEC64 /dev/sdb1` and press Return. Note that the name of the stick (e.g. THEC64) is just an example. Use another name, or just omit the '-n THEC64' to not name the USB memory stick
7. Supply your root password and then the formatting will begin.

WHAT NEXT?

You now have a FAT32 formatted USB memory stick with MBR (Master Boot Record) used to:

- copy supported C64 program files onto the stick and run them using the File Loader
- save and load programs from within BASIC (using a 'thec64-drive8.d64' file)
- copy an official firmware upgrade file onto the root of the stick and upgrade THEC64 Mini firmware (assuming the upgrade file is more recent than your installed firmware build)

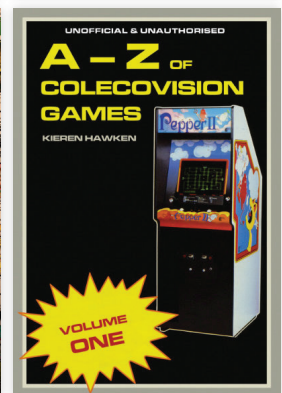
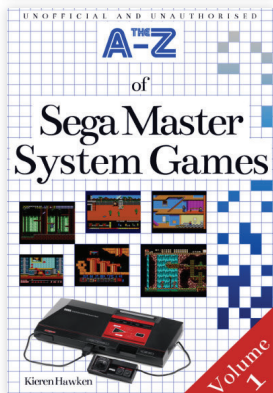
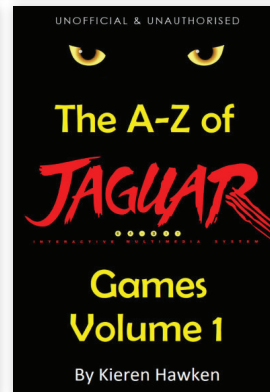
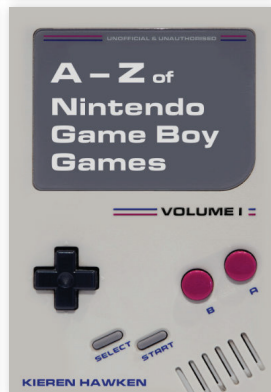
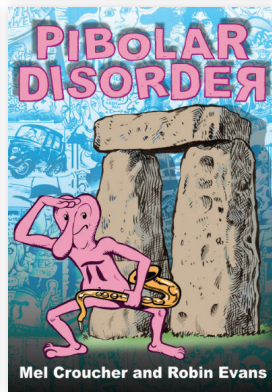
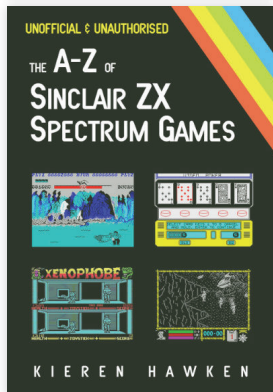
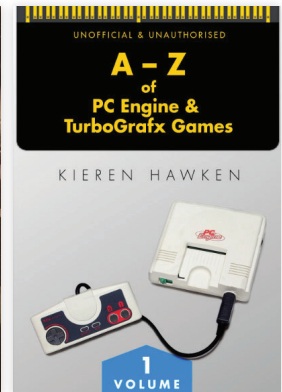
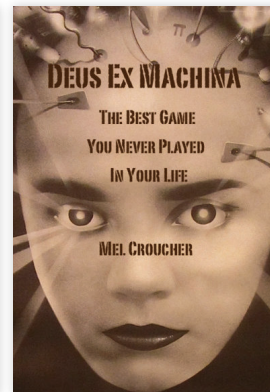
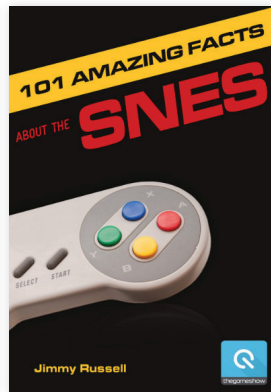
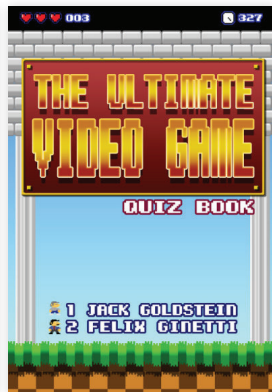
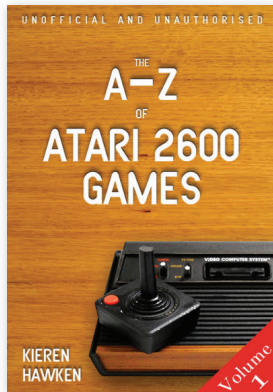
If after following this advice you still have problems with USB memory sticks, send an email to support@retrogames.biz and we will do our best to help. We would always recommend trying a different USB memory stick if possible before contacting us.



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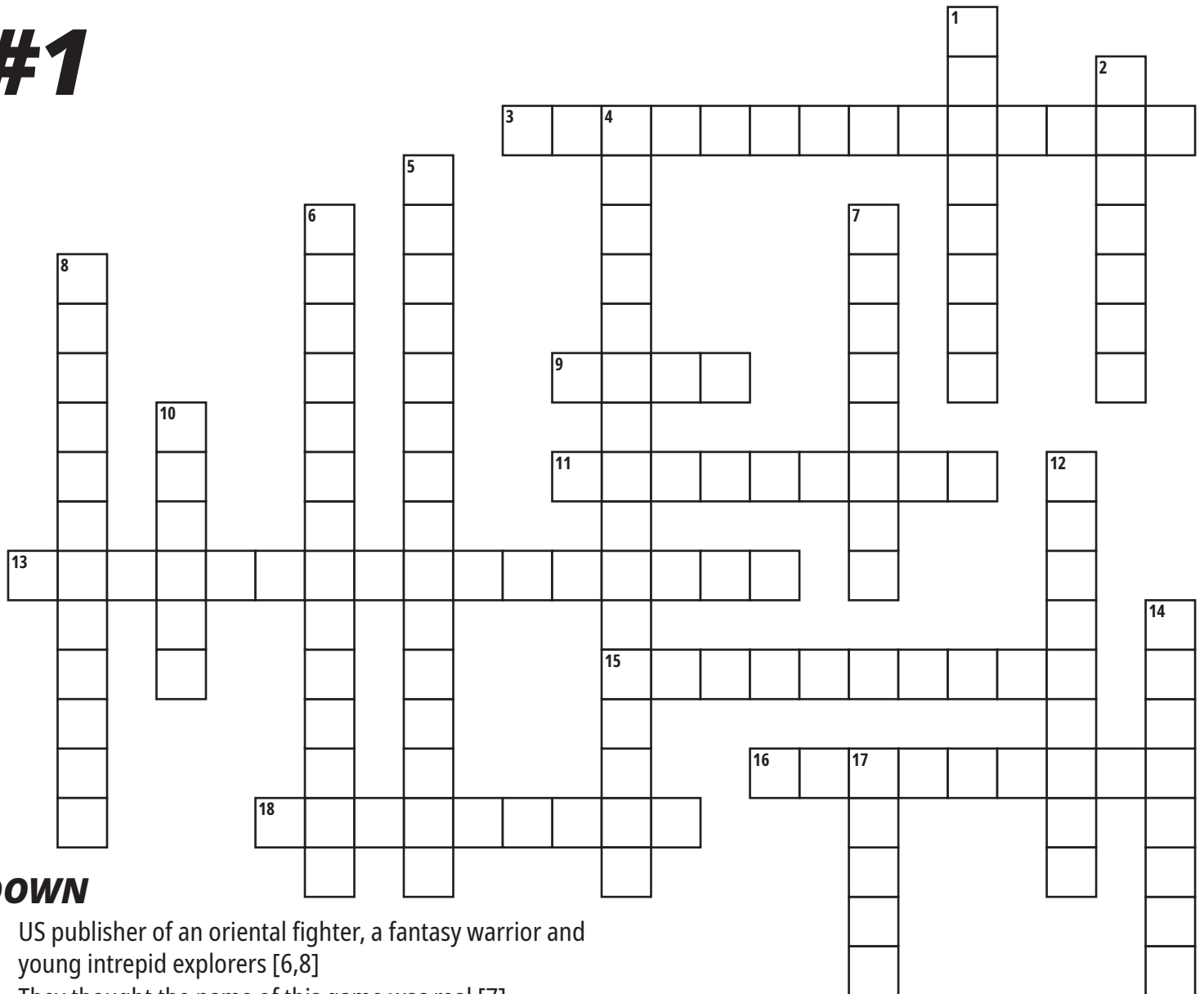
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CROSSWORD

#1



DOWN

1. US publisher of an oriental fighter, a fantasy warrior and young intrepid explorers [6,8]
2. They thought the name of this game was real [7]
4. This game was only ever published in a UK compilation [9,8]
5. This very British game for all players is casting aspersions [9,15]
6. This US developer couldn't use stellar battles, so went fractal instead [9,5]
7. It's bright white, yet you start this text adventure totally in the dark [8]
8. For legal reasons, this game became its own sequel [3,5,4]
10. This publisher has more games on the European THEC64 Mini than anyone else [6]
12. This game was inspired in part by a brutal 70's futuristic sport movie [9]
14. This UK and US publishing label was named after a Stravinsky ballet [8]
17. Cross this UK publisher and expect to get wet! [5]

ACROSS

3. US developer of a foray over foreign soil and a sandy cranium or two [6,8]
9. A mythically mischievous UK developer and publisher [4]
11. The UK's first AA game to feature 8-bit solid 3d graphics [3,6]
13. This developer created a number of popular European games featuring balls, but only once did ball feature in the title! [8,8]
15. Stealing from an ancient nursery rhyme mum. Who is he? [3,7]
16. The happiest time of your life, confusingly! [5,4]
18. On reflection, deviating photons is important in this game [9]

The answers to Crossword #1 will be published in the next issue.

RETRO MEMORY LANE

Tim Chaney (Commodore UK and US Gold)

In this THEC64 Mini-themed issue, we ask someone from the games industry about their C64 anecdotes. First to step up to the plate is Tim Chaney, who became MD of US Gold and President of Virgin Games, but who started his career in the games industry working for Commodore UK. Take it away, Tim!

“ It was late 1981. Back then, with no internet of course, “The Grocer” was essential weekly reading for job postings. If you were looking for work in the fast-moving consumer goods (FMCG) industry, the best jobs were there.

It was odd, then, to find an advert from Commodore Business Machines for regional sales managers to help introduce to the UK its new home computer, the VIC-20.

I bought a few magazines to buff up on what a home computer was, applied, and was offered an interview at the The Spider’s Web Motel in Watford. After the usual wait, I was introduced to Paul Welch, a fiery Northerner and Commodore’s sales manager. As interviews go it wasn’t a good one.

Paul dismissed much of my CV and accomplishments, and as I began to think I wasn’t going to get the job anyway so I started to defend myself, telling him he was wrong. By the time I’d left the interview I decided I had no chance, so my brain erased the whole episode.

A couple of weeks later, I was home in Newport Pagnell when the phone rang. “Hi Tim, this is Paul



Welch,” came the voice. “Who?” I replied. “Paul Welch. From Commodore? We met a couple of weeks ago in Watford.”

“Oh yeah?”

“I’m calling to offer you the job.”

“The what? The job? But it was a terrible interview. You thought I was crap!”

“Not at all – you were the only one who fought your corner and came back at me. My interview style is always like that. So... the job is yours if you still want it?”

And so a few weeks later I was dropped off at Ajax Avenue in Slough (incidentally home of TV show The Office) to pick up my Ford Cortina, the sales rep Ferrari of the day.

After receiving the quick tour, Paul took me to the office of Bob Gleadow, the Managing Director.

“Hi Bob, this is Tim,” Paul said, pointing in my direction. “He’s joining us for North London and the Home Counties.”

Bob looked up. "OK... Is that it?". We continued the tour.

At that time, CBM was two animals. It had a full Business Division selling the Commodore PET and this 'toy computer' group– the Consumer Products Division – launching the VIC-20. Paul and his team – including John Baxter, Aileen Bradley, Brian Reed, Keith Langley and a team of another six or so –would ring up John Lewis, Boots, WH Smiths, Toymaster and so on, to ask if they wanted to sell Commodore's home computers, and there would be about 50 leads each week from independent retailers who wanted to stock the product too. Everyone received a visit.

Inside Commodore we were the lower classes compared to the CBM upper classes, but on the streets we were pioneers with a great product. But we really had little idea what the masses wanted to use it for Learn BASIC? Do your accounts? Check your horoscope? Write? Play games?

During my first week, Paul, Brian and I were stationed in the Post House hotel at Heathrow. We would meet up for drinks and dinner, and then I would head back to my room to go through Introduction to Basic Vol.1 until midnight. The first meeting the next day was at 9am no matter where it was, so if it was in Cardiff, we had breakfast at 5am. And back then there was no M25.

But the most significant part of this beginning was the induction into the culture of Jack Tramiel and Commodore. There was a 10-point code for working at Jack's Commodore which came in a little booklet that included such gems as, "We don't have competitors, only enemies. Respect them but crush

"We don't have competitors, only enemies."

them," and the fairly obvious "Treat every penny as if it was your own."

There were others, but Jack Tramiel's number one was "Business is War" mantra that was designed to seep into every brain and blood cell: we were not there to take prisoners, we were there to rip the wristwatches off the dead. And over the next few years, we did: Atari's Lynx, the Dragon, the Grundy NewBrain, the Jupiter Ace, Memotech, the Oric, the Sharp MZ and the Thomson T07 all fell by our hands. RIP.

Only Sinclair, who had already had some success with the ZX80/ZX81 kit computers, gave us a run for our money with the Spectrum and the QL, while the BBC Micro and the Amstrad CPC shared our shelf space for more than a few months.

That first year at Commodore was spent signing up independent stores as Commodore 'Approved' retailers and training the staff of large retail chains. To become a Commodore stockist, the retailer had to buy an initial stocking order at £3,500 for each location (it was usually one but many had small chains). As well as the essential VIC-20s and cassette players, a gaggle of very average and expensive cartridge games (and a few cassette games) and copies of Introduction to Basic, the order also had to include a Commodore 1541 disk drive (which was just about unsalable) and some RAM expansion cartridges.

"Business is War" breaks down to the minutiae on a daily trading basis of course and manifests itself many ways. Take a retailer I signed in Greenford, Middlesex. He signed up for the order, posted his credit check, and the truck duly dropped off the stock. Even though he displayed it in his shop window he didn't sell much of it at all, and after 60 days or so he couldn't afford to pay the bill.

Commodore were gearing up to issue a winding up order. Back in the office, Paul cornered me. "What are we doing about the guy in Greenford?" he asked.



"Well," I said, "he's tried hard to build up local business by advertising and he's put us in the front window."

"So? He can't pay the bill!"

"We should show some goodwill, Paul."

"Goodwill? When I want ****ing goodwill, I will pay for it!"

The home computer training of retail managers and staff for Dixons, Rumbelows, Currys, Wigfalls, the Co-op and others either took place in hotels or at the retailers' training offices. A truck would drop off between 25 and 50 VIC-20 packs and staff would open them, go through the contents, cover all the sales features and then, as a finale, be taught how to perform simple BASIC code, like GO TO and RUN.

The strangest training day I can recall was one where we taught some Hoover vacuum cleaner dealers how to sell the VIC-20.

Paul had made a deal with around 170 Hoover stockists in the UK to sell the VIC-20. They came into Slough over the course of a week to a purpose built and rather plush training room in the Skyline Hotel adjacent to Heathrow Airport, to learn the fundamentals. In the space of a day they went from "This model has great suction along the skirting boards" to "This model has 5K of RAM, 3.5K of which is usable while the rest runs the system." I don't know if they actually managed to sell any as I moved up into the role of National Accounts Manager.

TO BE CONTINUED...

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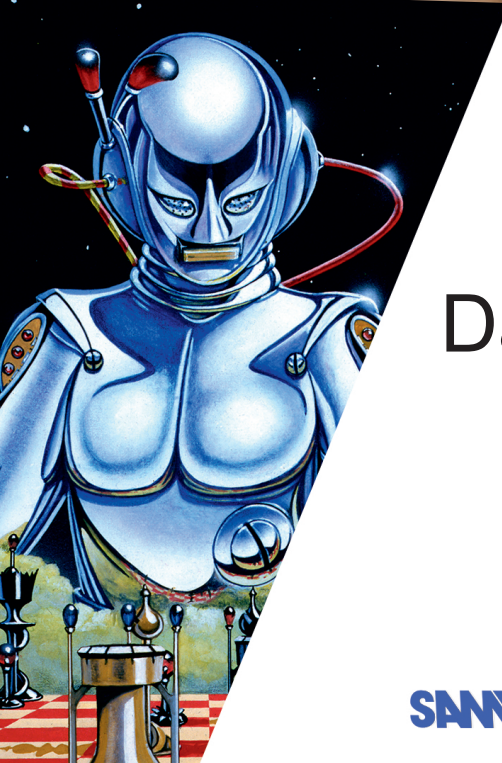


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THEC64 Mini File Loader

written by Retro Games Ltd.

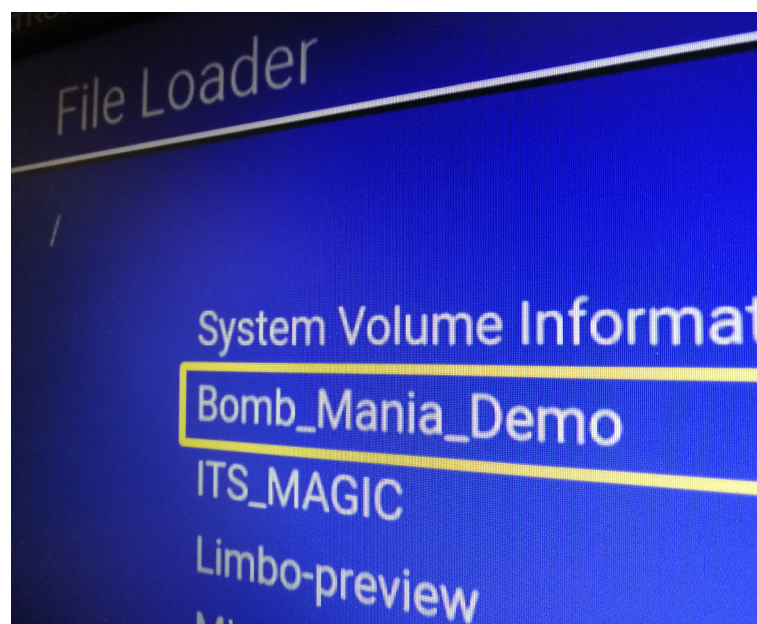
THEC64 Mini comes supplied with sixty-four officially licensed classic C64 games. It's actually sixty-five if you include all of the original Summer Games events that can be accessed via Summer Games II. There is something in there for everyone, whether you like arcade action games, sports games, RPGs or puzzle games, but what about other games?

There have been a number of new C64 titles released digitally in the intervening years by many enthusiastic and extremely talented people. Some original IP owners have explicitly allowed their older C64 programs to become digitally available as well, so why not allow people to add those to THEC64 Mini?

Firmware upgrade 1.1.0 was released in early October 2018. It gives owners of both the European and the North American models the chance to load and run additional C64 programs from a USB memory stick.

Full instructions are available on the web site at <https://retrogames.biz/support/file-loader>, but the purpose of this article is to delve a little more into each aspect of this new functionality.

The compatible file formats supported on THEC64 Mini are d64, g64, d81, d82, crt, tap, t64, p00, prg and there are three methods available for loading them from a correctly formatted USB memory stick. Each method has its advantages and disadvantages, as we will discover.



JUST GET ON AND LOAD IT ALREADY!

Place a compatible file without any modifications onto the USB memory stick. The File Loader will see the file on the USB memory stick and will load it upon selection, making a few assumptions on your behalf, which are:

- The primary joystick is allocated to port 2 and the secondary (if connected) to port 1
- The type of machine (PAL or NTSC) is determined by THEC64 Mini's firmware (North American models assume NTSC, European models assume PAL)
- Only the standard FIRE and \equiv buttons are mapped on the connected joystick(s), along with the usual UP, DOWN, LEFT and RIGHT
- Disks are loaded in fast mode, speeding up loading times considerably in some cases

Advantages: No preparation required on the files

Disadvantages: The assumptions made by THEC64 Mini might not work for the C64 program you are loading. You can't reconfigure the joystick functions to suit the program

FLAGGING FILENAMES

You can append a compatible C64 program filename with 'flags' that pass information to THEC64 Mini. The order of the flags is unimportant, but getting them correct is important, else THEC64 Mini ignores them.

For example, **C64-GAME_TNJ1RO.d64** runs the C64-GAME disk on an NTSC C64, using a joystick in port 1 and sets the disk file to read-only. Here's how it works:

- | | |
|----|--|
| J1 | If your C64 program needs the main joystick in port 1, then use this flag. If the program can use two joysticks, the second joystick assigns to port 2 automatically |
| J2 | Port 2 is the default set for the main joystick by THEC64 Mini, so you don't *have* to use |

AD This flag turns 'accurate disk drive' mode on, meaning that it loads C64 disk files at the same speed as the original C64 disk drive, which wasn't the fastest! However, some C64 program files might not like the default quicker loading method, so using this flag turns off the fastdisk mode in preference to the slower but more accurate method. This enables the 'drive icon' function by default so you can see when the drive is accessed

NI Some C64 programs don't do much whilst loading from disk. It would be good to see confirmation on your TV or monitor that the disk is still loading, especially when it can take a while to finish when using the 'accurate disk drive' mode.

| | |
|----|--|
| TN | This runs the C64 as an NTSC model. This flag doesn't affect the HDMI output, so it is fine to use on both the North American or European models of THEC64 Mini. |
|----|--|

Let's look at each line in the example cjm file in much more detail.

X:

| | |
|--------------|--|
| pal | This runs the C64 as a PAL model. This setting doesn't affect the HDMI output, so it is fine to use on both the European or North American models of THEC64 Mini. |
| ntsc | This runs the C64 as an NTSC model. This setting doesn't affect the HDMI output, so it is fine to use on both the North American or European models of THEC64 Mini. |
| driveicon | Some C64 programs don't display any progress whilst loading from disk. By default, the on-screen drive icon only appears when 'accurate disk drive' is on. However, you can disable this default action and turn it off using this setting. Why would you do that? Well, some C64 disk programs leave the drive light flashing once loading has completed. The drive icon mimics this behaviour and continues to flash away in the top-right corner of the screen whilst your C64 program is running. Now you see why for some C64 programs you might want to turn it off! |
| readonly | Some C64 disk files have to be write-protected, else they won't load. You also might want to write-protect disk files so THEC64 Mini can't write back to the file, deliberately or accidentally. Using readonly sets the disk so it can only be read and not written back to |
| accuratedisk | This flag turns 'accurate disk drive' mode on, meaning that it loads C64 disk files (D64, D81, D82, G64) at the same speed as the original C64 disk drive, which wasn't the fastest! However, some C64 program files might not like the default quick loading method, so using this setting turns off the fastdisk mode in preference to the slower but more accurate method. This enables the 'drive icon' function by default so you |

can see when the drive is accessed. See *driveicon* above for more information on that.

These are the exact same effects used by the flags method explained earlier, but there's much more to CJM files than just that!

V:

You only use this vertical display shift feature for programs that need it. The vertical display shift number moves the screen position up or down over a range of + or - 16 display lines. It is useful if a program has graphics or information that appears in the top or bottom border, as a modern 720p HDMI television screen will otherwise only partially display it.

To shift the display up, enter a positive value (see the example shown below). To shift the display down, enter a negative value.



Normal display



Display vertically shifted (+12 lines)

For NTSC C64 programs, going +8 or above could trigger problems in the bottom area of your TV or monitor. The NTSC C64 has fewer available display lines than PAL in the bottom border area, so going above +8 could trigger some odd visual effects down there.

We therefore recommend that you experiment with the + values for NTSC C64 programs. How high

you can set this depends on how much of the bottom area displays on your TV or monitor.

J:

THEC64 Joystick has 12 separate functions available, including the main shaft and all of the buttons. These are UP, DOWN, LEFT, RIGHT, left-FIRE, right-FIRE, TL, TR, A, B, C and \equiv

The \equiv button isn't reprogrammable otherwise you would lose the ability to instantly pause, save or load, exit the game or display the on-screen virtual keyboard. So, excluding \equiv that leaves us with 11 functions that we can map to specific C64 keypresses, based on the requirements of the C64 program you want to load using your CJM file.

Pressing keys

You might have noticed that THEC64 Mini doesn't come supplied with a functional keyboard. A number of C64 programs use specific key-presses to activate specific actions. One example; to change weapons in an arcade action game you might press the Y key. On THEC64 Mini, we decide to map button A to be key-press Y so to change weapons you press button A on the joystick. No keyboard required. The player doesn't even need to know that Y was the original key-press.

You can map number (0-9), letter (A-Z) and function (F1-F8) keys to the joystick, but there are a group of other keys and joystick functions that you might also need to map to the joystick that have specific values in the CJM file:

| | | | |
|----|----------------|----|--------------|
| JU | Joystick UP | CL | Cursor Left |
| JD | Joystick DOWN | CR | Cursor Right |
| JL | Joystick LEFT | DL | Delete |
| JR | Joystick RIGHT | EN | Return |
| JF | Joystick FIRE | HM | Home |
| AL | Arrow Left | RS | RUN/STOP |
| AU | Arrow Up | RE | RESTORE |
| CM | C64 key | SL | SHIFT Left |
| CO | Comma | SR | SHIFT Right |
| CT | Control | SS | SHIFT Lock |
| CU | Cursor Up | SP | Spacebar |
| CD | Cursor Down | PO | Pound (£) |

Looking at our example once more, we can see that there are actually 14 values assigned to a Joystick in the CJM file:

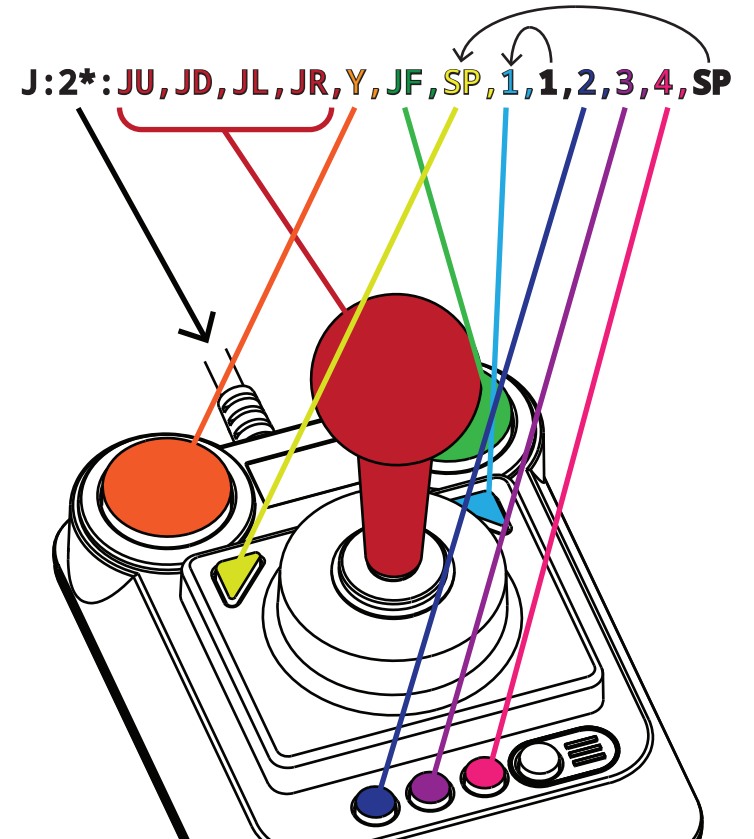
```
J:2*:JU,JD,JL,JR,Y,JF,SP,1,1,2,3,4,SP
```

The first is the primary port number, which is indicated using an asterisk (*). After that, we have the four directions JU, JD, JL and JR for the joystick shaft. After those are the two red, round FIRE buttons. All of the supplied games found on the GAMES CAROUSEL have both round buttons assigned as JF, which made them suitable for left or right-handed players, but you can have them programmed to whatever you want, as they are independent buttons. For example, assign the left button to the key-press that changes weapons in an arcade action game (e.g. Y), and assign the right button as JF.

The smaller red triangular TL and TR buttons are next. Assign whatever key-press you need to each, or set them as additional JF buttons if you prefer.

The next value is not actually for THEC64 Joystick, but could be used by other USB controllers that have additional buttons. It is usually assigned the same value as the TR button.

The next three values are for the small, round red A, B and C buttons that line up with the \equiv button. The final value is for another of the extra buttons found on some controllers. This is usually assigned the same value as the TL button.



Creating a CJM file

What you use to create a CJM file depends on what computer operating system you use. Below are brief instructions for the three main systems (Windows, Linux, macOS). Remember to give the filename the same as the C64 program filename, but use the .CJM extension instead.

Insert your USB memory stick into the computer (not into THEC64 Mini).

Windows 10/8/7

Use the standard Windows Notepad utility to create a text file:

1. Press the Windows key and E together to open the File Explorer.
2. Browse to your USB memory stick using File Explorer and locate the C64 program file you wish to create a CJM file for.
3. Right-click, select 'New' and choose 'Text Document'. You can rename the file now to match the relevant C64 filename, but leave it as .txt for now.
4. Double-click the file and enter your CJM values. Use File, Save As when you're finished.

Remember to rename the file extension to .cjm when you're finished, and ensure that the CJM file is stored in the same folder as the C64 program file that it relates to.

macOS

The following instructions apply to High Sierra (10.13.6), which is a recent version of macOS. However, these instructions should apply to most of the earlier releases but we can't guarantee that it applies to all releases of macOS.

1. Run Finder. Select Applications > Utilities > TextEdit.
2. Add your values (described below) into the new text file and when you're finished, select 'Format' and choose 'Make Plain Text'.
3. Select OK to convert. Set 'Unicode' to UTF-8, uncheck the option that offers to add .txt to the filename and then save the file with a .cjm file extension.

Linux

If using a graphical desktop environment, open up the USB memory stick and then right-click in the window and open a terminal session from there.

Alternatively, open a terminal session and then navigate to the USB memory stick in the usual way, e.g. `cd /media/<username>/<usb-stick-name>`

Once in the correct folder of the USB memory stick, we are going to create a CJM file that will have the same name as the C64 program file.

1. Type `cat > C64-GAME.cjm` (substituting C64-GAME for your filename) and press Return.
2. Now enter each line in your CJM file, typing directly onto the screen and pressing Return at the end of each line.
3. To save the file, press Ctrl+d and then exit from the terminal session.

Advantages: A CJM file allows you to configure everything relating to C64 program files running on THEC64 Mini via the File Loader, including all of the joystick functions and vertical display settings.

Disadvantages: It can take a while to create and configure a valid CJM file.

WORD SEARCH

HMERUVYNOTROUPS
MOROLMELINDAGT
OVERSGMLTTEDNE
NDUGERALDPNODL
TEOOMIHRYOIGHB
YXLLABYXRPRUB
MTGAGSENRADOANI
OEYOOOKOAI OFTR
LRDGRGROCDHPGTEG
EINRTSARRADAGRA
OTAAEYMRRTL OEE
OYRFRAIOSNOLMY
REDNEB MOTADDLV
IECONFUZIONAEM

BOOGALOO

SCORPION

RETROGAMES

ANTOPIA

GERALD

HUNTER

MONTYMOLE

DEXTERITY

VORTON

CONFUZION

GRIBBLETS

RANDYGLOVER

MACKEYHAM

ATOMBENDER

MELINDA

GRAFTGOLD

HARRY

FARGOAL

EPYX

MERVYN

The solution will be published in the next issue.

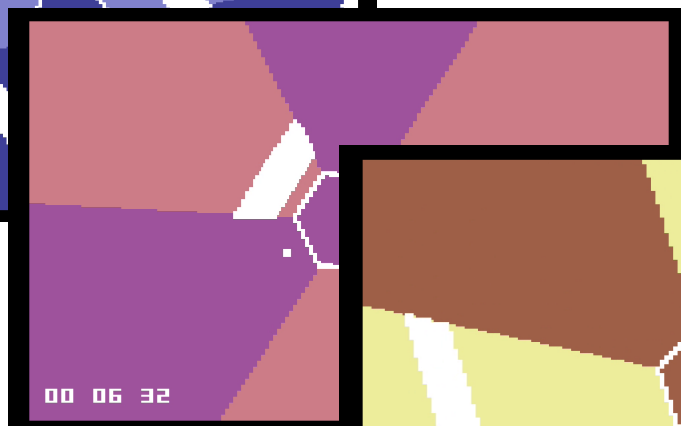
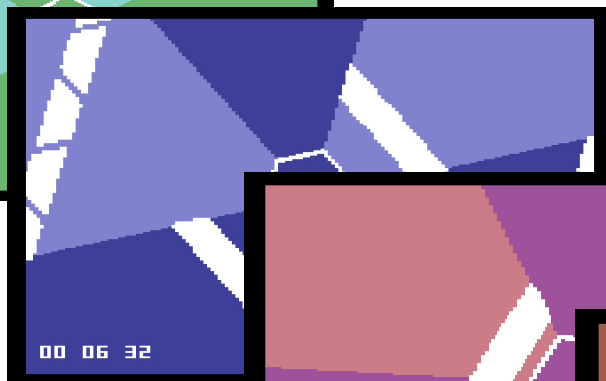
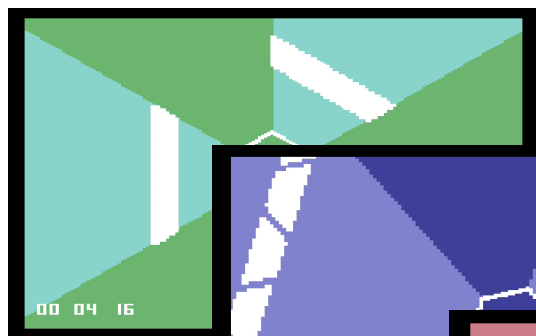
CHICKEN-HEADS-UP!

Here we aim to bring to your attention a number of recently developed C64 games and applications that can run on THEC64 Mini. There are plenty of new games and demos out there, and by supporting the developers, you are also ensuring that the C64 remains alive.

Thanks to the C64 community for alerting us to a number of new games and demos that run on THEC64 Mini and on the original computer hardware.

Micro Hexagon

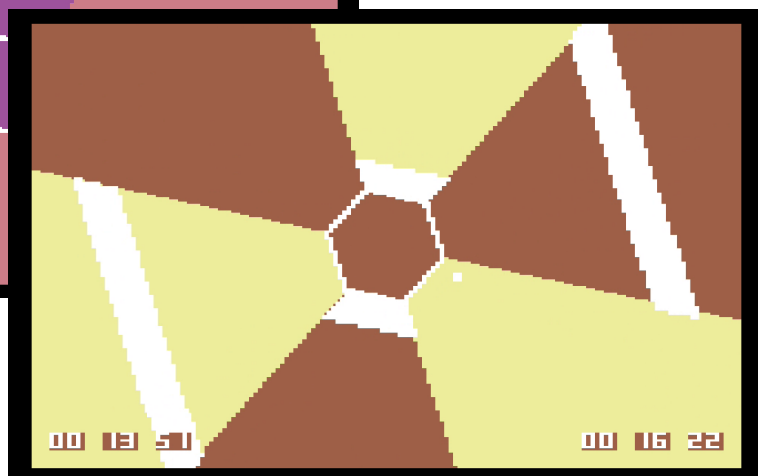
One such game is *Micro Hexagon*, which is available from <https://rgcddev.itch.io/micro-hexagon>. You choose how much you wish to donate to the developers when downloading the game from the web site.



Please be aware that players susceptible to motion sickness or epilepsy should be cautious when playing this game, as it rotates, changes direction, changes colour and changes speed during play!



Tip: This is a PAL only title, using Joystick port 2. The quickest way to configure this for THEC64 Mini is to add _TPJ2 to the filename.



If you wish to create a CJM file for *Micro Hexagon*, we suggest the following:

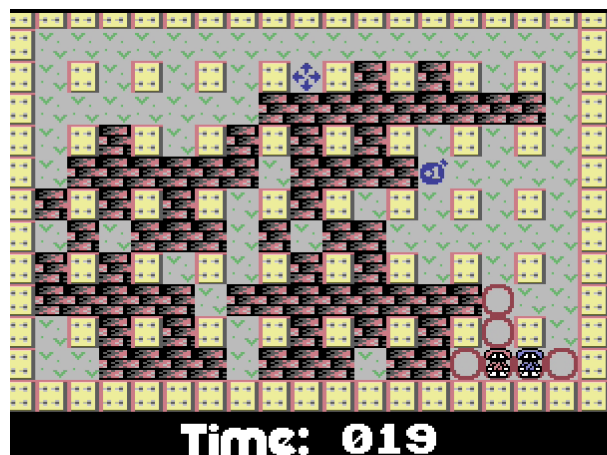
```
X:pal  
J:2*:JU,JD,JL,JR,JF,JF,JF,JF,,,JF
```



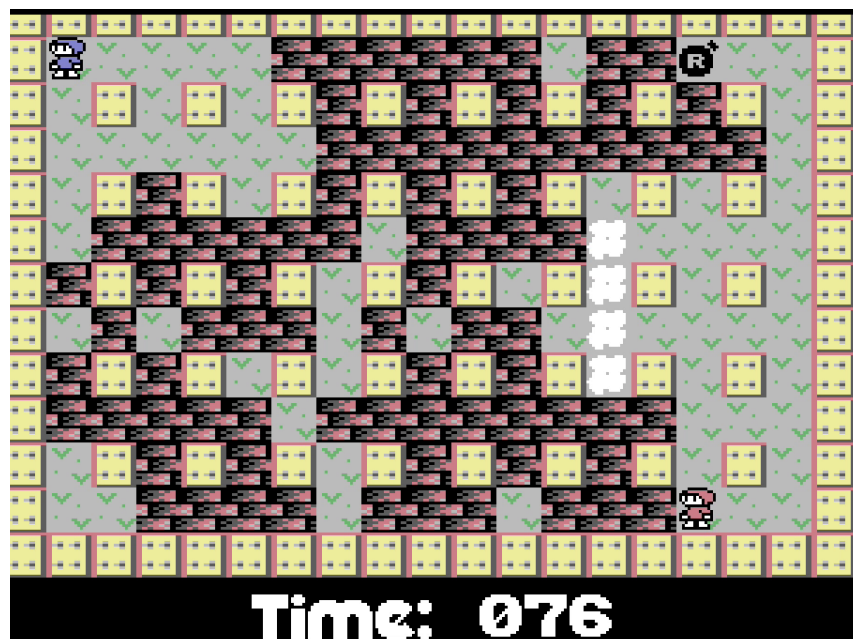

Bomb Mania

Our second shout out goes to Protovision, who have been serving the C64 community for many years. From their impressive catalogue of titles at <https://www.protovision.games/>, we have been looking at a downloaded two-player demo of Bomb Mania.

You play head-to-head with two players in this demo version.



Tip: The Bomb Mania demo runs best under PAL and uses both Joystick ports. You might also want to shift the vertical display to +14 to give a good view of the level timer at the bottom of the screen.



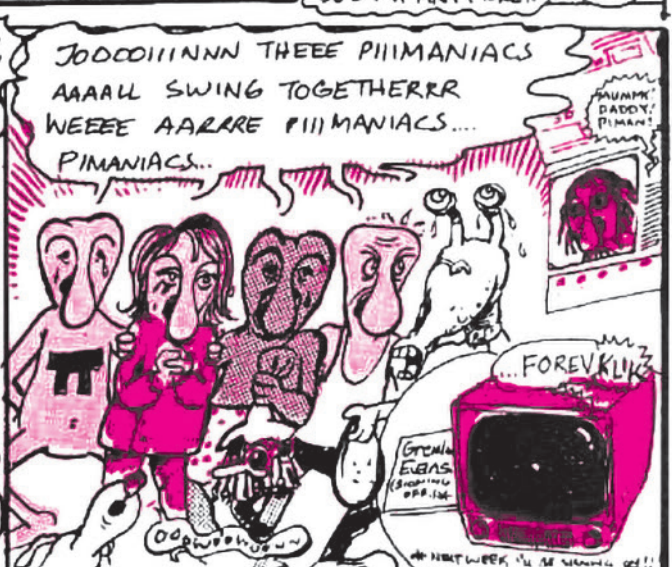
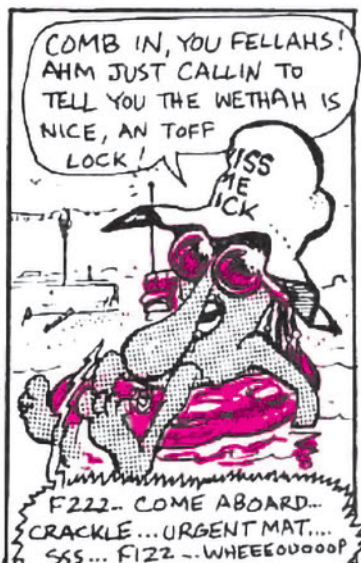
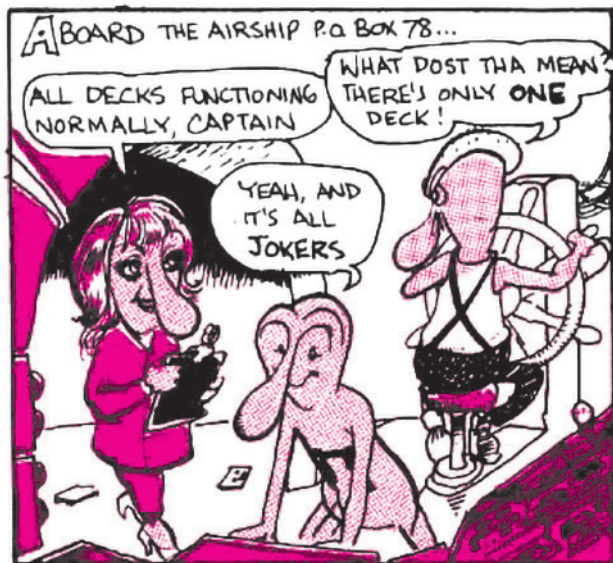
If you download the demo or buy the full Bomb Mania game, create a CJM file to configure it for playing on THEC 64 Mini, using the following suggestion:

```
X:pal
V:14
J:2*:JU,JD,JL,JR,JF,JF,JF,JF,JF,,,,JF
J:1:JU,JD,JL,JR,JF,JF,JF,JF,JF,,,,JF
```

Be aware that the four-player mode in the full game is only possible on an original C64 computer and uses an additional hardware dongle that has to be purchased separately.

If you have discovered a hidden C64 gem that can be purchased and/or legally downloaded, please get in touch and we will try and feature it in a future issue. If you have a suggested CJM configuration file, send that along as well!

MEANWHILE, IN 1985...



...WHO KNOWS?

WATCH THIS SPACE...