The Interface

"Taking 8-Bits Into The 21st Century"

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Happy New Year From FCUG And Commodore!

Welcome to the power and prestige of the new Commodore

In This Issue:

Newsletter of the Fresno Commodore User Group – Fresno, California
www.dickestel.com/fcug.htm

THE EDITOR'S GODZILLA

- By Lenard R. Roach

THE AGONY OF DE FEET

Personally it drives me nuts to be working on a Commodore program project and suddenly hit a snag in the process. The problem is usually some sort of bug in the code that I unknowingly put into a line that is making the computer get as close to "hacked off" (mad) as digitally possible. However, unlike humans who are stuck in a conundrum and can't get out, the computer gives up and tells the programmer to "suck toe fungus," i.e., it displays the ever popular but always unwelcome SYNTAX ERROR IN message. The computer is telling the user where the problem might be. This is helpful to a point. Usually the Commodore is correct in the location of the problem line of code. However, sometimes there is that elusive part of error code that the SYNTAX ERROR does not tell you about. In my experience, it is not the direct line of code in the SYNTAX ERROR message, but the problem lies deeper in the code. As the computer grabs every FOR/NEXT loop, GOSUB, and GOTO, the Commodore reads that one line, the machine freaks out and sends the annoying error message saying that "this ain't right" and interrupts the program flow.

Eight times out of ten (at least by my luck), the Commodore has already pointed out the incorrectly phrased text of code. The programmer sees the problem line and does an easy line rephrasing. The program can go on to do what it was written to do. Problem solved; the day is saved.

Then there are people like me who have the fortune of a one-eyed, accidentally neutered, mange-infected dog that goes by the name "Lucky," and the Commodore only gives the user a lead but not a solution. This is where I have to put down my copy of the Commodore 64 Programmer's Reference Guide and pick up my copy of The Complete Sherlock Holmes. It is time to play detective and start tracing down possible clues that will lead me to the infected line of code and repair it, if possible.

When I started coding on my first Commodore 64 back in the early 1990s, I was being coached by my best friend in the whole world, Carl Zuel (Master Z). Carl taught me two things right off the bat: One: save early, save often, and use "save with replace" (@0:) only in necessity. Always save any progress on a program under a different filename. Two: REM different sections of your work as subroutines, joining each subroutine with either a GOTO or a GOSUB command. This way, any errors that show up may be located in the erroneous subroutine and fixed without digging line by line through the entire document of code trying to find the elusive error. This method of Master Z's has worked for me for many decades … for the most part.

Then there are those very few times when, despite all the aforementioned ways that I was taught, I come across that *one* error in the line text that I cannot find. It drives me "nuckin futz" (and that's

putting is as politely as possible)! I would be cruising along, being in "the zone," putting down many of lines of BASIC code, and then right when I'm ready to relish my programming prowess, I type RUN and …

SYNTAX ERROR IN (line number)

I start cussin', fussin', and fumin', madder than a hornet who has had a bug killer cocktail, always thinking at that moment that the worst has happened. The search begins. Somewhere within the hundreds of lines of BASIC code that I've typed, a problem exists and I'd have to track it down.

In the case of the program project "Donation Station," it took me several days going through each line of the extensive document of code, and I still didn't find the faulty line. I was more than cheesed off. For days I could do nothing but think about the program and where the error (or possibly errors) might be. This made my productivity at work go down, which got me a couple of trips to the office. The verdict from the warehouse manager: "Focus or we'll cancel your contract."

I took the "advice" of the warehouse manager and put Donation Station on hold in order to focus on getting my driving numbers back up. This proved to work out not only for the job but also for working on the program as well. Keeping my work world and computer world separate, I managed over time to narrow the problem down to one of two possible errors in the code:

OPEN2,8,2,"@0:";FN$;",S,W" (the sequential write command with replace)

Or:

OPEN2,8,2,"0:";FN$;",S,R" (the sequential read command)

I looked hard at both of these lines for hours. I compared the expressions found in both The Commodore 64 User's Guide and The Commodore 64 Programmer's Reference Guide to what I had written in the code, and everything was right. I was up late nights, sometimes to 3:00 or 4:00 am and couldn't find diddly. What I wrote down in those lines of code was correct. I checked both the INPUT# command line as well as the PRINT# line, and they were both correct. I changed the ";" punctuation to "+" and still got the error message. I was flustered beyond my capacities. To save what was left of what little sanity I had, it was time to give up.

I usually do not allow such a thing as a Commodore command line deter me from writing or even finishing a Commodore program project, but I was frazzled close to my endurance point. Besides, I had a life to live and sitting behind a Commodore keyboard, staring into a UV-filled Commodore monitor, and messing up my eyes was not on my immediate agenda. In bitter frustration, I erased the work disk containing all the program files pertaining to The Donation Station and put the now blank disk in my small collection of disks that I will use sometime in the future for other projects.

Looking back (which is always 20/20 people say) I shouldn't have destroyed all the work that was done while coding Donation Station. While Gabriel was eleven and going through leukemia treatments, I was working on "TEA 4 2" and faced a similar problem. From his sick bed he showed me that if I walked away from what I was working on and then come back to it later, I would have a fresher perspective. I tried doing that with Donation Station, but my mind was still on the program, so I basically brought my work into my playtime. I should have done that again, but now it was too late. I should take another chance at writing the program again. I will have to start the coding from scratch. Live and learn.

A man who sued the airline for losing his luggage unfortunately lost his case...

MONTHLY MEETING REPORTS

- By Robert Bernardo & Dick Estel

JANUARY 2026

The Fresno Commodore User Group began a new year with rather sparse attendance January 18. Only Robert and Dick were present. We knew Dave would be out due to recent flu-like symptoms. We suspected that Bruce decided not to brave the heavy fog that enveloped the area that morning. Roger's whereabouts are unknown, but we have high hopes that he will reappear.

We looked through the latest issue of Compute!'s Gazette, and Dick was pleased and surprised to see his name listed as a significant contributor to the GEOS world, mainly with the Font Resource Directory, a listing of over 1,000 GEOS fonts that he sold to Commodore users worldwide. The information was part of an extensive article about GEOS resources by Bruce Thomas, long-time promoter of Commodore and GEOS in Canada.

Robert reported on the two upcoming shows we sponsor. The Commodore LA Super Show (CLASS) on April 25 and 26 in Burbank will feature a first-ever silent auction, where those attending can bid on an SX64. A few classic brown C64's will be available for purchase.

Robert has started creating a video commercial for this year's CLASS. After dodging the traffic while trying to film in downtown Burbank, Robert made the short drive from his family home in Stockton to Lodi and let that town stand in for the dangerous southern California city.

The Pacific Commodore Expo Northwest (PaCommEx) V7 will take place two months after CLASS on June 20 and 21 at the Old Rainier Brewery in Seattle.

These two web pages just went live this week:

CLASS:
https://portcommodore.com/dokuwiki/doku.php?id=class:start

PaCommEx:
https://www.portcommodore.com/dokuwiki/doku.php?id=pacommex:start

Robert and Dick discussed the 2025 club financial report. Our only income recently is from dues, and not everyone pays on time. Our expenses are minimal, but readers will see from the report appearing elsewhere in the newsletter that our total assets dropped by a bit over $120. In an attempt to keep the club on sound financial footing, Robert will list for sale some of the many Commodore items he has collected over the years. Proceeds for such sales in the recent past have gone to support the computer shows the club sponsors, but CLASS currently is only a few dollars short of breaking even for this year's event, and a few sales will move that account into the black.

Moving on to presentations, Robert pulled out a cassette which housed a fold-out USB stick. On the stick, he had the entire library of games, demos, and apps which came with the new Commodore 64 Ultimate. (The C64U came with a cassette/USB stick which was labeled

Commodore, though Robert's version was generic.) He had gotten the library copy from a Southern California Commodore & Amiga Network member who had just received his C64U. Admittedly, almost all the software could be found for free on the Internet, only a few being exclusively released for the C64U.

Robert inserted the bulky cassette/USB stick into his newly-updated Ultimate 64, the firmware update making the older U64 configuration menus look like those in the C64U. The menus were more logically labeled than they had been in the past. Robert went down the list of software categories on the stick. Under BBS, he showed CCGMS Ultimate and the similar Ultimate Term, though he did not connect the U64 online. Under Demos, he ran A.I. Love You and then Bad Apple 64. Under Exclusive, he showed Jollydisk, a demo which ran Christmas music and pictures, some with animation. Under Games, he ran Super Bread Box. He then ran the GEOS Boot disk which popped up the GEOS desktop. Under the category, GEOS Swap Disks, there were various apps, like Geopublish, GEOGif, and more. However, he had not worked out the method of mounting a new disk for GEOS while in the U64 environment, i.e., how would GEOS recognize a virtual file (.D64) on its desktop? Under Music, he ran Bonzilloscope which played music while showing an animated oscilloscope display. Under GUI64, he ran its desktop, which was very plain and once again he could not figure out how to mount a virtual disk into it. Though GUI64 came with a text file, there were no instructions for its use.

The meeting was finished relatively early, due to Dick having to leave, but he enjoyed the presentations.

FEBRUARY 2026

When the meeting got underway, Dick reported on the donation the club voted late last year to give to "Wings." There was no link for donations on the organization's website, so Dick contacted a woman he knew who worked with them. It took a while, but she finally advised that Wings had no checking account, but that she could accept cash and would give us a receipt. This was done.

Robert told us about a couple of demos planned for the April 25-26 Commodore LA Super Show (CLASS). Ben Betts will discuss the Video Toaster and LightWave, and how they were used in television production in the late 20th century. Betts worked on a number of shows in that time. Mark R. Rubin, who created Commodore 64 graphics program Doodle, will speak about that. For the first time in years, Roger would not have a filmed or live presentation for CLASS. However, he was invited to come to the show and just hang out and enjoy.

Robert then described the creation of this year's CLASS commercial, showed us a full storyboard, and then showed the finished product. It was a sequel to the CLASS 2025 commercial, carrying on with the Mission: Impossible espionage theme. Creating the commercial involved filming in Seattle, Burbank, and Lodi, multiple actors, and many hours of editing effort in order to produce the final 2:24 commercial. Though not posted publicly yet at the time of the meeting, it will be found on You Tube at

https://youtu.be/uEQj5Aglnx4

For presentations, Robert brought the Mini-PET, the computer which was built to replicate a Commodore PET 4032 but with enhancements such as BASIC 4.1 and the use of a wall-wart power supply. With the attached SD2PET drive, he loaded and ran BASIC programs, like

Arkanoid and Frogger. Roger noted that Arkanoid moved quickly and smoothly.

Then Robert connected his Amiga 1200 '060 which was running Amiga OS 3.9. When Bruce saw its desktop, he asked whether OS 3.9 could be installed on his Amiga 2000 which had a 68040. Robert said that Bruce's machine was fast enough and had enough memory for OS 3.9 but that such an installation could possibly delete files on the machine. When Bruce heard that, he declined to have any installation. (Upon further thought, Robert realized that all of Bruce's files would have to be archived first before any OS installation.)

During the rest of the meeting time, Robert and Roger tried to get CAD 3-D 128 to run on the Commodore 128. According to the download from the Genie archive on-line, CAD 3-D 128 was programmed in Ultra Hi-Res, a BASIC language by the same authors who later wrote the commercial BASIC 8. No matter what Robert and Roger tried, it did not run, not in 40-column mode nor in 80-column mode. A BASIC Load didn't load it; a machine language Load didn't run it. Did it need a POKE to start? There were no on-line instructions for it. After some time, Robert and Roger gave up and ended up with lots of small talk as they disassembled their computer equipment.

Wings: https://wingshwp.org/

CLASS: https://portcommodore.com/dokuwiki/doku.php?id=class:start

Video Toaster: https://en.wikipedia.org/wiki/Video_Toaster

LightWave: https://en.wikipedia.org/wiki/LightWave_3D

Doodle: https://www.c64-wiki.com/wiki/Doodle

COMMODORE 64 ULTIMATE REVIEW

THE BEST PIECE OF MODERN RETRO TECH I'VE EVER EXPERIENCED.

- by Seth G. Macy, writer for the IGN website

[Editor's note – A positive review]

The Commodore 64 Ultimate is the most astonishing retro product I have ever reviewed. I was expecting it to be a straightforward, modern take on the all-time best-selling personal computer. I imagined it would be a newer version of the C64 Mini or C64 "Maxi," with a selection of games and software built in and accessible through a bespoke menu system. Seriously, I would have been totally fine with a modern C64 that hooks to modern 4K displays and televisions and let me experience the C64 ecosystem on the big screen. And it does that, extremely well.
But it also does so much more, more than I could have ever imagined it would. Better still, it does all those things amazingly well. From the spot-on design of the packaging down to the perfection of the keyboard in every way, the Commodore 64 Ultimate is the kind of modern take on retro hardware that all future endeavors in the space should aspire to. They won't. But they should.

A man who sued the airline for losing his luggage unfortunately lost his case...

WHAT'S IN THE BOX

The Commodore 64 Ultimate packaging looks the part of its predecessor, although dimensionally they differ. The original C64 box is a little taller and a little less wide, but otherwise the modern take evokes the exact same feeling as the original right from the packaging. It's an excellent combination of both old and new, listing the modern capabilities of the device while using old-school images of people using the original on CRT displays.

Right on the copy printed on the box, the Commodore 64 Ultimate positions itself as an antidote to the modern computing experience, which I'm completely into. As someone who's been using the Internet since before Netscape was even a thing, I often think back wistfully to how much simpler it was when a computer was a tool you used to create things, not a device that serves you ads. The tagline on the back says "Classic Form. Ultimate Function. Distraction Free."

For those of you who weren't born before 1980, the original Commodore 64 was not only the most successful 8-bit computer of the 1980s, it's the best-selling personal computer of all time. So many Gen-Xers grew up with a Commodore 64 as their first home computer, and if they didn't have one (like me), they knew someone who did. It debuted at $595 in 1982, but within a year, competition had cut the price in half. In the 1984 Sears Holiday Wishbook catalog it's listed at $229.99, while the Coleco Adam just a few pages later is $700.

The C64 was affordable, well supported, [and] handled business and productivity applications while also having a huge library of games. You could load software from 5.25" floppies, cassette tapes, or cartridges. It was versatile, compact, extremely affordable and available everywhere. It also had a custom sound chip that let the C64 sing, literally, giving it a huge edge. The C64 produced an iconic sound modern chiptune artists like 8-bit Weapon still use.

Inside the box is the Commodore 64 Ultimate itself, which is actually available in three different versions. There's the classic beige, a fully transparent and LED-lit model, and a special edition gold translucent version only available for those who backed the device early on. I'm going to get into the design later, but as soon as I opened the box I was struck by just how perfect this is in terms of replicating the look of the original.

There's also not one, but two, small, double-sided sheets of Commodore-branded vinyl stickers. The stickers are great. They're high-quality, not garbage paper ones like I would have expected, and it's just another delightful part of the experience. There are a few for the logo, one for the classic "READY" prompt, a tiny tape drive and floppy drive sticker, and more. It's great. I'm going to stick these things everywhere (except for the C64 Ultimate itself, of course).

There's a transparent plastic AC adapter with different interchangeable plug styles for your region, and a generous 2.5 meter HDMI cable in a Commodore branded bag. The cable itself is not branded, however, which is maybe the only thing I can point to with the C64 Ultimate and say "I wish this were different." The cable itself supports Ethernet over HDMI, for reasons I don't understand, as well as 4K resolution.

Underneath it all, nestled in a protective cocoon of bubble wrap, is probably my favorite addition to the C64 Ultimate box: an honest-to-goodness

A man who sued the airline for losing his luggage unfortunately lost his case...

spiral-bound instruction manual just like the original. And it's an ACTUAL instruction manual, too. It's not just a 4-page quick start guide translated into 16 different languages to pad it out. This is an almost 250-page tome of goodness we just don't see anymore. It's more than just a passing resemblance between the new and the old. Yes, there's a quick start guide, but beyond that, the manual teaches you how to use the Commodore 64 Ultimate in the same way the original manual taught you to use the C64. There's a section on BASIC, the computer programming language so many oldheads like me first learned, as well as Advanced BASIC.

This is probably my favorite thing about the C64 Ultimate: the fact it's a modern version of the old hardware on which I love writing BASIC programs. If you're not familiar with the language, its primary purpose was to make computer programming easier for beginners. In fact, the name BASIC is an acronym for "Beginner's All-purpose Symbolic Instruction Code." No one uses it anymore, not for anything serious. Ask anyone now and they'll tell you to start with Python.

Well I'm here to say those people are wrong, and BASIC is the perfect place to start. One of the greatest things about having a hardware-identical version of the original Commodore 64 is all those old magazines and books with page upon page of BASIC code will still work exactly as they were intended. You've probably seen engagement-farming social media accounts talking about how "back in the day" people would copy programs from magazines, by hand, into their computers line by line. Can confirm, we really did. And with the C64 Ultimate we can use those same programs, or just copy and paste them and load them in via USB. I think that's cheating, but I'm also not above it.

I haven't delved deeply into the world of programming the C64 Ultimate, at least not yet, so I can't speak authoritatively on whether or not there's some string of code somewhere that won't work on the Ultimate. Knowing what little I know about FPGA, I don't think that will ever be a problem I'll come across. The beauty of FPGA versus software emulation is the hardware works exactly like the original. Sure, someone out there writing in assembly might find some peculiarity with the system that wasn't present in the original, but for me? Hell nah, let's get some BASIC code going baby!

The fact you're taught BASIC in the manual, and then taught advanced BASIC, as well as sprite and sound manipulation, makes the manual even more of a valuable resource. This is exactly the kind of thing I love, and exactly the way computers used to be. You didn't just buy a computer to passively entertain yourself, you bought one to do rudimentary spreadsheets, play some games, and create your own experiences. I love it. The best thing about learning any computer language is the fundamentals are all pretty much the same. Once you understand if-then statements, or "for" loops in BASIC, you'll understand them in JavaScript, or C#, or pretty much any other language.

PERIPHERALS, MODERN AND CLASSIC

What was maybe the most surprising revelation to me about the Commodore 64 Ultimate was its support for the original Commodore peripherals. Things like the cassette deck and iconic 1501 floppy disc drive will work with the C64. I don't have the cassette deck, unfortunately, and while I have the floppy drive I don't actually have any floppies with which to test it. The big batch of floppies I picked up earlier this year were all unreadable, so sadly I can't speak to that, at least until I luck my way into another cache, one that hopefully works.

What I can say is the C64 Ultimate will work with a classic CRT monitor, and that just makes me all kinds of delighted. Is it more convenient to use it

on a modern display? Yes, a thousand percent. Is it more fun? Not even close. Thankfully I have several CRT monitors compatible with the Commodore, including an original Commodore CM-141 monitor I drove two hours into the wilderness of Maine's coast to acquire. Weirdly, the default settings were in PAL and so I had to go in to change them, but once I did, I was absolutely delighted by the CRT-goodness. I don't have the correct cable to use the CM-141, but I do have one that let me hook it to an old Magnavox monitor that has a setting to output in a faux phosphor-green. Can't complain about that!

I wish more retro-revival hardware had the option for analog video. I'm sure the people who want such a thing make up a very tiny percentage of the population, but for something as specialized as the Commodore 64 Ultimate, it is a perfect fit. The modern Commodore company sells the proper cables on its website, so I'm probably going to buy some just so I can plink away at my next BASIC program in front of the warm glow of a humming, 13" color CRT TV.

Another odd peripheral I have is a Commodore 1670 modem, though the Commodore 64 Ultimate lacks the User Port from the original where it hooks up. Instead, the Ultimate has modern connectivity like Wi-Fi and an Ethernet jack. It’s probably for the best anyway – I've messed around with slow, retro modems on old hardware before and it's fun, but 1200 baud makes even BBSes slow to use. And besides, if I do want that old-school experience, there's modem emulation built into the system anyway.

While having Wi-Fi rules, at first I couldn't get the Wi-Fi to work. I entered in my Wi-Fi password and waited for a while, tried it again, rebooted and tried one more time and it never showed the "Link Up" message on the Wi-Fi configuration page. It wasn't until after I hooked it to a wired connection that it decided to come to life, after which I was able to disconnect from the Ethernet cable and have it maintain its wireless connection. Not sure if that was just a coincidence or a weird bug, but it gave me a brief jolt of disappointment.

I'm also sadly lacking in C64 game cartridges, which is a bummer since the Commodore 64 Ultimate can play those natively, through the expansion port in the back of the computer. But since it can run those carts, it can easily run ROM files, ones that you of course own legally or are provided from reputable, legal sources.

SPOT-ON DESIGN

The Commodore 64 Ultimate is indistinguishable from the original at first glance. Everything about it looks and feels exactly the same as the original. The beige case and brown keyboard is fantastically reproduced from the original, for better or for worse. It's not until you take a closer look do you start to notice the differences, with the modern ports, a transparent window on the side and a much smaller port for the AC adapter.

The Commodore 64 logo badge on the top? Perfect. The red LED power light? Flawless. The keyboard? OK, like I said before, absolute perfection – for better or for worse. Let me explain myself.

Typing on the Commodore 64 Ultimate gives you the exact same tactile feel of the original. The key travel is perfect, the "clunk" of the switches, even the subtle texture of the plastic feels exactly like the original. It's just fantastic. I think my love of modern mechanical keyboards can be directly traced back to this era of computing, and the feel is wonderful.

Keeping with the original in every possible way, however, is going to require you to unlearn some of the modern keyboard placements you've been using since things settled down to a standard layout. This isn't a fault with the design, it's unfortunately a byproduct of keeping things so perfectly retro. I find myself struggling with some

of the key placement, like where the double-quotes are (they're over the 2-key, by the way).

If the C64 is the computer you grew up on, your muscle memory might come back to you easily. But otherwise, there's a little more hunting-and-pecking here than I've done in years. It's not a fault of the design at all, and it can't be avoided, but it's just something that you'll definitely experience when you shift from the modern keyboard layout burned into your brain. And I wouldn't want it any other way.

One major, positive design change is the power supply. The original C64 power supply was a brick almost literally, and pretty much every original C64 power supply is waiting to someday blast the original hardware with an overvoltage that will ruin it. The new one is cased in transparent plastic and doesn't take up half your desk like the original monster.

It plugs in right next to the multi-function button, a rocker-style switch that turns the Commodore 64 Ultimate on and off and lets you switch to the special configuration menu. It took a little more effort than I was expecting, and it's just a touch too small for my large hands. Turning off the Commodore 64 Ultimate requires you to push down and hold for 4 seconds, and I don't like that. More than once, I thought I'd activated the button, but was instead standing there like an idiot with the button 90% pressed for 10 seconds. Given the change of configuration of slots and peripherals, I would have liked a two-position switch for power and a momentary switch to go between C64 and configuration modes.

SOFTWARE

In keeping with the retro-modernity of the Commodore 64 Ultimate, there's a USB stick in the shape of a cassette tape, complete with cassette case, included in each box. You plug it into a very modern USB port in the back and then access it via the configuration menu in a very old school, hierarchical file system type of way.

The software on the drive is generous, to say the least. There is so much here, it's overwhelming. Rather than go through every single included piece of software (which I wouldn't mind doing, honestly), I'm going to touch on some of the more notable programs.

But before I do that, I'm going to shout out a feature they didn't need to include, but they did anyway; when you start up a program from the file browser, the Commodore 64 Ultimate starts whirring and clicking, with the occasional buzz for good measure. It's making the sounds you would expect from a program loading from a floppy disc and it's absolutely wonderful. When I was a kid using computers, I loved the feedback of those mechanical drives. I always felt like I was listening to the computer "think." This little feature adds so much to the experience, in a way I didn't expect at all.

Back to the software, there are dozens of demos on the USB drive, and not the ones we're all used to. The demo scene, while still around, is a pale reflection of its former self. Basically, programmers and hackers would flex their skills by creating demonstrations of their programming prowess. They would push machines to do things that didn't seem possible with custom animations and music, and you can see some of them here. One of the most notable and well-known demos is Bad Apple, presented here as Bad Apple 64. The Commodore 64 Christmas Demo is also on the USB, which is delightful. I'm nothing if not full of holiday cheer.

There's also a huge selection of games on the USB, but maybe my favorite addition here is GEOS, a graphical user interface designed specifically for the Commodore 64. While I don't see myself switching from macOS to GEOS any time soon, it's so cool to see this rudimentary GUI running on original hardware. Unfortunately I

can't locate my compatible Commodore 64 mouse, but there are still dedicated hobbyists out there making them in our modern times, and Commodore sells compatible devices on its own site.

I'm a little surprised you can't use a modern USB mouse, which would have been much easier for the end-user. I don't think it would have taken anything away from the experience, either. In fact I'd argue it would enhance it, given most people own at least one USB mouse, but very few people own compatible Commodore mice. I dug through the various menus and didn't find any options, but if there's a way, please let me know.

I'm mildly obsessed with different GUIs and will take any opportunity to try them out, so I'll probably scour eBay for a mouse, especially because it also has a whole suite of GEOS software. If I really wanted to (and I do), I have the option to hook up a Commodore printer and print off my own beautiful GEOPaint creations, or I can use the Virtual Printer and save generated files to the USB as .pngs. From there I can just open it on a modern computer and print it from there. And friends, best believe I'm going to be doing that once I get a compatible mouse.

VERDICT

The Commodore 64 Ultimate is the best piece of retro-revival hardware I've ever experienced. Every important detail here is immaculately executed, from the subtle texture of the keys to the unexpected floppy drive sound effects when you start up a program. Its modern updates, like HDMI out, Ethernet, and Wi-Fi networking add to the experience by breaking down some of the more cumbersome barriers with old computers. Those modern additions are just that—additions to a system that still gives you the option to experience things as they were, whether that's through a CRT monitor or by dusting off your old 1541 floppy drive. The genuine love that went into this revival absolutely shines through in every part of the experience, and I am so excited to see what community pops up around the Commodore 64 Ultimate and what they use from the past to build towards the future. If you have even the slightest interest in old-school computing, you should add this to your collection. It is pure 8-bit joy.

REVIEW: *COMMODORE 64 ULTIMATE*

THE REBORN COMMODORE 64 IS AN ASTONISHING REMAKE—BUT DAUNTING IF YOU WEREN'T THERE THE FIRST TIME AROUND.

- by Matt Kamen of Wired magazine

[Editor's note – A less than positive review]

Rating: 7/10

WIRED

Extraordinarily authentic re-creation of the original hardware. Maintains compatibility with classic peripherals. A few welcome concessions to modernity. "Digital detox" approach is compelling.

TIRED

Requires deep-seated nostalgia, curiosity, or both. Far from intuitive for newcomers. Authenticity equals slowness.

It's hard to overstate just how seismic an impact the Commodore 64 had on home computing. Launched in 1982, the 8-bit machine—iconic in

its beige plastic shell with integrated keyboard—went on to become the best-selling computer of all time. Despite the success, manufacturer Commodore International folded in 1994, with rights to the name floating around for years afterward.

Then, retro-gaming YouTuber Christian "Peri Fractic" Simpson got the bright idea to buy the company wholesale and re-create its most important piece of hardware. This isn't the first effort to resurrect the Commodore 64, but this particular reborn rig might be the best attempt yet. It's a near-perfect replica of that 43-year-old titan, one that looks, sounds, and feels like the original. It is, by any measure, a frankly extraordinary achievement—but it's not going to be for everyone.

EVERYTHING OLD IS OLD AGAIN

Dubbed the Commodore 64 Ultimate, the old-new (or new-old?) device looks like a relic of the '80s—and I mean that as a compliment. It bears the same all-in-one, wedge-shaped design as the original, the same chunky keys, even the same overall color palette for the beige model (it's also available in a transparent Starlight model with RGB lighting and, for early buyers, a golden Founder's Edition). If it weren't for the distinctly un-yellowed plastic shell, it could be mistaken at a glance for the real thing, leftover stock straight from 1982.

For some, that will be the most compelling thing about the C64U—it *is* the real thing, sort of. At its core, this is a field programmable gate array (FPGA) device, an approach most often seen to re-create classic game consoles (as with the recent Analogue3D "remake" of the Nintendo 64). To strip the idea right back, FPGAs tell one chipset to pretend it's another and, ideally, allow for performance near-identical to the original machine at a hardware level, rather than through emulation.

This goes a step further, boasting a heap of physical connectors and ports that allow you to use authentic peripherals from the '80s. If you still have your original joysticks or datasette to hand, they should all work as they did back in the day. For fans, collectors, or anyone who has their original Commodore gadgets stashed in a garage somewhere, that's a fantastic proposition. The revived Commodore International hasn't quite put the classic hardware back into production, but this comes damned close.

The C64U makes a few concessions to modernity. There are a pair of USB-A ports at the rear, where you'll connect the cassette-shaped USB stick that comes with each unit, loaded with games, software demos, music that makes use of the C64's still legendary audio capabilities, and GEOS, a graphical user interface. More on that later. There's also built-in Wi-Fi and an Ethernet port, allowing access to bulletin boards and the Commoserve file server, and HDMI output. Even there, though, there's still the option for connecting to a CRT monitor, making the additions feel more like a tweak than an overhaul.

A man who sued the airline for losing his luggage unfortunately lost his case...

This dedication to the past goes too far at times, with elements painfully authentic to the point of being actively obtuse in 2025—original ’80s labels on the casing, such as "H-L" and "RF" (how the C64 connected to CRT monitors or TVs), or "USER PORT" where the HDMI, USB, and Ethernet ports are. And, despite the presence of those USB ports, you can’t use a modern mouse with the C64U—you’ll need either a period piece or to set the WASD keys to act as a virtual joystick whenever you might need to manipulate an onscreen cursor. There’s almost a sense of resentment here, as if anything *too* modern would be a desecration of the holy hardware, and any concessions made to ensure that the C64U is even halfway usable with present-day displays or add-ons were made reluctantly.

NOSTALGIA IS MANDATORY

The Commodore International of 2025, leaning into its deliberately dated approach, is another fascinating aspect of the Commodore 64 Ultimate. The company has labeled itself the “digital detox brand,” positioning the C64U as a bulwark against the distracting, loud, attention-grabbing devices we’re all accustomed to now. That actually appeals—I’m particularly sick of Windows cramming adverts into every corner of the OS and foisting unwanted AI features where they don’t belong (and then warning people not to use them anyway), so maybe a trip back to how computing used to be done would be a virtual balm. Unfortunately, that means traveling back to a time before I was actually born, and the temporal whiplash is brutal.

Be forewarned: If you do not have firsthand experience of the original Commodore 64, a deep and abiding love for its genuinely groundbreaking era of home computing, or a burning curiosity for retro technology, the C64 Ultimate is far from welcoming and is probably not for you. I wasn’t around for the original, so I have no innate nostalgia to lure me back in, but I can at least muster up that burning curiosity. Even then, getting used to the C64 environment is a steep learning curve.

Boot up the C64U, and you’re greeted by a re-creation of the C64’s menu. Here, you can type in operation commands just as you would back in the day, using the BASIC programming language. Problem: I don’t have the first clue about BASIC. However, in what is possibly the greatest throwback of all, the C64U comes with a spiral-bound, 273-page user guide. It is an absolute *tome*. Somewhat surprisingly, it’s not a reprint of anything that came with the original but rather a tailored guide to what the C64U does, where it differs from the C64, and how to get to grips with the computer’s capabilities. Equal parts history book and instruction manual, it starts out teaching you some simple commands and builds up to teaching you how to code. I’m still very much working my way through it, but that tactile approach—referring to the book, trying something out on the computer, back and forth—is a great touch.

HIDDEN UPGRADES

If you don’t fancy having to do homework, the C64U’s own default menu, accessed at any time with a flick of the multi-function power button on the right-hand side of the unit, is a simple list of options and settings. Hit RETURN to go into any section—say, Video Setup to adjust whether the C64U outputs in original resolution, in PAL or NTSC modes (surprisingly important, given some games will work with only one display standard or the other), or a crystal-clear 1080p with scan lines removed—and back out to save any changes to the system’s flash memory. It’s still a minimalist approach but feels fairly intuitive.

This is also where you can start playing around with some of the other modern touches of the C64U, like how to leverage its far greater power. Well, "greater" in comparison to 1982. Spec-wise, this isn't going to threaten any more modern machine, but running on an AMD Xilinx Artix-7 FPGA chip and packing 128-MB DDR2 RAM—compared to the 64 KB of the C64—it blows its inspiration out of the water. While at baseline it replicates the performance of the 1982 hardware, meaning it operates as if there's only the original 64 KB were there, you can menu-dive to activate a virtualized RAM Expansion Unit or activate a Turbo Boost to accelerate the clock speed to a lightning-fast (in this particular context) 64 MHz.

Then there's GEOS, loaded on that cassette-shaped USB. Navigate to the Disk File Browser on the C64U's menu to boot it up. This is the closest to a Windows or macOS type experience on the Commodore, a "regular" desktop environment. It has folders! And icons! It's likely the most comfortable way to use the C64U for anyone who wasn't there for the original—although if you don't have a compatible mouse, you'll have to get used to navigating it with WASD and RETURN to click.

However, while GEOS is clearer than BASIC, it's still not as smooth as more modern graphical user interface (GUI) operating systems. I've found it a little confusing switching between programs, for instance, as they seem to need to be mounted and then loaded into the OS before opening them. Even writing that back from my notes, preparing this review, I'm honestly not sure if I've been doing it correctly. Plus, when something doesn't work—failing to create a new document in GEOS apps like its word processor or paint suite was a low point—there's rarely an explanation of *why* it hasn't.

USER NOT FOUND?

Away from "proper" computing, the C64 was a pioneer for home gaming, and that's one area where the C64U does feel extremely accessible. The USB drive includes a host of classic and modern retro-style games, and more can be added in the form of disk images if you have them.

The C64U can run games in NTSC or PAL format—there's a whole other rabbit hole to dive down here, but some games ran better, worse, or not at all depending on the version, and because the C64U replicates the original hardware performance, games can present the same issues here—but switching display modes is simple through the main menu. Once you've chosen what you want to play, an internal speaker mimics the sounds of the original tape or disk drive as it loads up, which is a nice—and *extremely nerdy*—touch.

The downside is that in authentically re-creating the performance of the original disk or tape drives, it's also authentically slow—you can be waiting whole minutes for games to load. (The same goes for programs in GEOS.) Maybe it's part of that digital detox approach, an attempt to teach us whippersnappers younger than the C64 itself some patience, but I wouldn't have minded losing that particular aspect of the traditional Commodore experience.

Ultimately—pun slightly intended—that's the tricky line the C64U has to walk. Yes, it's tremendously accurate to the experience of using a Commodore 64 four decades ago, but who does that serve in 2025? Its proposition of a return to distraction-free computing could be a distinctive selling point, but I'm not sure that this much of a throwback, with its ponderous nature and leisurely pace of doing anything, is going to win many converts. Even for those with the necessary levels of nostalgia, if that hankering is mainly for the C64's games, this is probably too much—

emulation or those earlier C64 hardware re-creations that focused more on gaming are probably better options.

Despite all that, the Commodore 64 Ultimate really is an exceptional piece of kit. It's a beautifully crafted love letter to the groundbreaking original and a reminder that there's a different way of doing things on a computer, and what they're *for*, than what Microsoft and Apple offer now. Returning hardcore enthusiasts will undoubtedly love it—but it's hard to see the C64U reshaping the world as the original did.

(While Matt says that it would take "whole minutes for games to load," he doesn't mention that a speed loader can be installed, like JiffyDOS or Super Snapshot. With such a speed loader, games then load quickly.)

WRITE ON

-by Dick Estel

In the brief case I carry to every Commodore meeting are a number of steno pads, which I use to take notes about the meeting. Looking at some old entries recently, I puzzled over just what one particular entry meant. It was so hard to read that I could not even figure out what some of the letters were.

My handwriting was never good, but long ago, before we had a typewriter, I could write legibly in cursive. We bought a typewriter when I was 13, in about 1952, and I learned to type using the book that came with the machine. From then on I did not do any lengthy handwriting – mainly notes in high school and college, reminders to myself, shopping lists.

Eventually my cursive writing declined to the point that I began writing only in all capital letters. Looking at notes from 2020, I can read nearly everything on the page. However, I find myself puzzling over some of my more recent notes. What is that word? What is that letter?

Age and time have no respect and slowly, subtly rob of us of various skills. This is not inevitable; my mother had beautiful, legible writing to the last of her days at age 89. But for others of us, thank goodness for computers!

ON THE COVER -

It is very impressive to see what the new Commodore can do. Here is a picture of the new Commodore 64 Ultimate displaying a wonderful greeting to the year 2026. Welcome back, Commodore!

Club Officers

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A man who sued the airline for losing his luggage unfortunately lost his case...

-The Small Print-

The Fresno Commodore User Group is a club whose members share an interest in Commodore 8-bit and Amiga computers. Our mailing address is 185 W. Pilgrim Lane, Clovis, CA 93612. We meet monthly at Panera Bread Restaurant, 3590 West Shaw, Fresno, CA. The meetings generally include demonstrations, discussion, and individual help.

Dues are $12 for 12 months. New members receive a "New Member Disk" containing a number of useful Commodore 8-bit utilities. Members receive a subscription to The Interface newsletter, access to the public domain disk library, technical assistance, and reduced prices on selected software/hardware.

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