



THE EDITOR'S GODZILLA

-by **Lenard R. Roach**

Book Update And Other News

Dear friends of Commodore, I wanted to post a note and let you know that my new Commodore book, "Shift-Clr/Home: More 8 Bit Thoughts In A Gigabit World," is just a few weeks short of going into general release. The proofs have come back in the mail from Amazon and the content looked good; everything was blocked and paragraphed nicely but the book had no spine title or back cover description of the contents. This was my error since I never uploaded to my friend and cover designer, Tim, the proper files necessary to make them. I was kind of surprised to read that my back of my book would be white for lack of content. When I got the proof I had an awesome front cover of an actual Commodore 64 and the title of the book is written in Commodore font, but I had no back at all. None to worry, I've sent to Tim all the proper files and he has completed a wonderful cover for the book. All that is left for me to do is order final proofs, approve it, and send it on to publication.

"Shift-Clr/Home" is another collection of thoughts, ideas, stories, and essays as they were found in "The Interface," "Ryte Bytes," "Commodore Free," and "Reset" magazines. Since there was much more content in this book

than there was in "Run/Stop-Restore," I didn't add much opening commentary to each story like I did in my earlier book, but I did add a synopsis to each story so you do know what you're getting. You can either read each segment straight through or you can skip around and read what you want. Again, each story is, on average, three to five pages in length so you can read an entire chapter while visiting the restroom.

Why did I decide to release a second volume of my writings about Commodore? Mainly because I was asked to by a member of FCUG. I also like writing books and making them available to whoever will be willing to put money down on it. I appreciate every person who has bought any of my books in the past and I look forward to entertain and educate those who care to learn about our beloved and all about fun machine available in so many different styles, memory size, and capacity.

How about a spoiler right here in this article? I have found on a flash drive in the Commodore room of the RC4BCS with even more Commodore article content. These pieces are mainly commentaries about club meetings that we had before the Commodore Users Group of Kansas City disbanded. I also have writings for the Fresno Commodore User Group before the newsletter went to an all PC format. Seriously, I fought hard to make "The Interface" an all Commodore publication but with technology pulling further and further ahead on me I found it difficult to stay up on just a stock Commodore 128 and 9 pin printer, so I finally gave in to the demands of the era and started publishing "The Interface" on a PC. In any case, the Commodore name is still being put out there for all to read about and enjoy.

One of the hard things about this third Commodore book in the making is getting the permission from all the former members of the CUGKC to agree to let me use their names in the

publication. I know I could always use the disclaimer that some of the names listed in this book may bear similarities to actual persons, on which the writer used solely without knowledge or forethought, but that would be a lie. Even worse, I believe some of these people may have already gone to be with Jesus and therefore getting permission may be a little difficult without the use of a medium. When I published the story about the person who taught me Commodore in the pages of “Reset,” I had to get permission from the widow to get it into print. She was cordial and asked for only one change before it hit the market, but that change never happened since the article hit the Internet before corrections can be made. Rest assured, in the reprint of that article in “Shift-Clr/Home,” the corrections have been made and the piece will be printed as it should have appeared.

This newest Commodore book in the works still has, as of yet, no specific title. The working title is, “Run/Stop-Restore: From The Desk Of...” but I'm thinking the book should have its own stand alone title without bearing any resemblance to the two predecessors, but a good title escapes me for the moment. If I tarry here long enough on this side of terra firma, I should come up with a catchy title for the book. I have not established a specific release date for the work but I definitely want it to fall on the week of CommVEx during July of some year, so please keep an eyeball out on my Facebook page for more developments, and also in my commentaries here in the pages of “The Interface.”

Now onto something else ...

As I have already posted on Facebook in November of last year, I will not be attending the 2017 Commodore CommVEx like I previously wanted. This is due to finances being as tight as they have been over the last 12 months; it's been hard to get things together to get ready. I know that I needed some outside help for me to start

putting money aside for the CommVEx, and since acquiring some, I've built up a nice bank account and, if all goes well, I should be going to CommVEx in 2018, but that may be totally up to the US Bankruptcy Court. I really need to save for a new car, but even then I have to get permission from the Court to buy anything over \$2,000 no matter how hard I've tried to save in my own time.

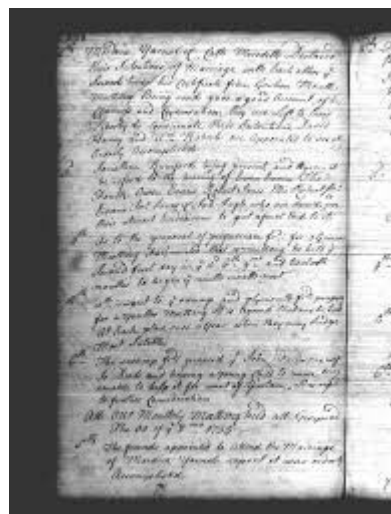
Robert did ask me to make a video of any projects I may be working on so the video can be shown at the 2017 CommVEx, but finding someone to help me in making the video has been hard. Tim, my regular video person, has hit on some hard family issues that he needs to spend his time in trying to resolve and Pastor Jon, someone more local to the Kansas City area than Tim, can't do it until he finds the money in his own personal budget to get the necessary equipment since his own personal gear has a few missing parts necessary in making the videos. I can say that I haven't sat down and done too much more on the Commodore except make a few corrections to some errors I found in the code of “The Ledger.” I would like to do more on the Commodore, but I'll have to shake some extra time loose from the hourglass so I can sit down and actually work with it. I have enough construction sets here in my personal Commodore software collection to make a few things and I need to learn how to make these items work.

On a more personal note, if anyone knows of the whereabouts of a good used Commodore MPS 802 printer then please get a message to me. I've been having troubles making my latest printer work with “Check It Out” and since the program was coded with the MPS 802 in mind, I was going to go back to basics and start that project over. I could also use a new 40/80 RGB monitor. Right now I am using a small 19 inch flat screen TV and the Commodore doesn't like it at all. The screen from time to time will go blank in the middle of a broadcast for about the length of 1.5 seconds, then come back. Also, this newer TV

seems to not understand the Commodore signal code for red and make that color more of a pink on the screen. I'm thinking also that it could be the Commodore 128 that I am using and I may replace it with a Commodore 64 that I have in storage and see if this will improve relations between Commodore products and modern broadcast technology.

I do want to wish everyone who will be attending the July 2017 Commodore CommVEx the best and that the show will go off without incident. So far FCUG and the other participating clubs have made every show go without a hitch and if there was a hitch, Robert and his team didn't let any of the patrons attending know there was a problem. I will be looking forward to the time when I will be attending, but when I do get to go, I will not be coming by car like I usually do. One thing I having done since I was young was ride on the train so I am hoping I will be able to make the links and changeovers necessary to take the train to Las Vegas, rent a car while there, and go home on the train. I have already been looking into costs and destinations and the Amtrack seems to only go to a city 90 miles south of Las Vegas somewhere close to the Arizona border. I was thinking of catching a bus from there to Vegas and finding a car from there, or just taking a car from the destination on into Vegas. The whole cost for the train ride would be \$156 per person and I am looking on bringing about seven people other than myself. I don't know if that would be cheaper or just renting a van from Kansas City and driving again, but I wanted to have the experience of riding the train again. Last visit to CommVEX we were blessed and got an upgrade from Avis Rent A Car for free because our scheduled ride was late in being returned. Our rental that time was \$373 with unlimited miles. All we paid for was gas and oil. Yes, a 2015 Chrysler Town and Country did burn up a quart of oil being ran non stop from Kansas City to Keytesville, Missouri, then to Tulsa, Oklahoma, then finally to Vegas. This time the train sounds good, but again, there is pricing.

None to worry, I have 12 months to figure this out.



MONTHLY MEETING REPORTS

May, 2017

-by Robert Bernardo & Dick Estel

The May meeting took place on a day with fluctuating weather. It had been 99 degrees the Thursday before our May 7 gathering, 69 two days later. Sunday started out with a cold rainstorm and ended with temperatures heading back up.

However, everything was just right inside Bobby Salazar's Cantina, with a small but lively group. In attendance were Robert Bernardo, Dick Estel, Brad Strait, and the latter's two youngest kids, William, 7, and Charlotte, 4. Bruce Nieman came in later for a while.

At first it seemed to be stormy inside, when several pieces of equipment failed to work. Equipment Manager Roger was ill, so Robert had gone to his storage facility and pulled out a 1084-S monitor, which he connected to his VIC-20. Although the monitor had been working recently, on this day it displayed nothing but a narrow

horizontal line, leading to a couple of lame, flat-lining jokes.

No problem, we thought, as Robert set the VIC and the monitor aside and moved his SX-64 into its place. However, the SX monitor produced nothing but a plain, light gray glow, so it also was banished to the corner. Using the BenQ VGA monitor, Robert set up his tower AmigaOne G4, and finally we had a working computer, just as our food arrived.

Equipment matters were set aside as we enjoyed lunch and started the official business meeting. Robert will be attending Maker Faire in San Mateo later in May, an event that draws around 100,000 people. A fair number of them always stop and ask about the old computers he displays, which this year will include a C64 and an A2000.

On June 2nd Robert will be at the William Shatner Weekend in southern California, where he will ask the one-time VIC 20 spokesman to autograph a piece of Commodore equipment.

The big event in June is the Pacific Commodore Expo at the Living Computer Museum in Seattle, an event Robert is producing with the help of other Commodore enthusiasts in the area. We had been told there could be no selling at the event, but it has been determined that commercial activities are allowed under certain very stringent circumstances, including the completion of tax forms for three different jurisdictions and obtaining a business license. In other words, we will not be selling.

In CommVEx news, Robert reported that he will be putting advertisements for the show on Craig's List in several areas.

There will be a time change for our June meeting, scheduled for June 18, Father's Day. Another group has booked the room we use at 2 p.m. that day, so we will start our meeting at 10 a.m., and

be out of the restaurant by 1:30.

At the conclusion of business, we watched the final segment of the movie "Viva Amiga: the Story of a Beautiful Machine," this part focusing on music creation, and a few minutes of the follow-up movie, "Viva Amiga: the Bil Herd Story."

There was not much in the way of hardware and software demos, due to malfunctions. William sat at the AmigaOne and wrote a short story about Fire Monsters, and the rest of us discussed all kinds of things, many of them computer-related.

June, 2017

-by Robert Bernardo & Dick Estel

The meeting started earlier than usual -- 10 a.m. rather than the usual 11 a.m. -- because another group had booked the restaurant room at 2. We were to be out of there by 1:30 or so. We had three of our long-time regulars - Roger Van Pelt, Robert Bernardo, and Dick Estel, plus two special guests. Dave Smith was a member more than 22 years ago, and he joined the club that day. He is now retired and is thinking of getting a Commodore system set up. Alex Lewandowski, a Visalia resident originally from Poland, had attended one of our meetings in the past, and this time he brought in a special piece of equipment for our enjoyment. His involvement with Commodore and Amiga began when he was about seven years old in the 1980s.

During the business meeting, Robert reported on the Maker Faire in May, where he set up several systems. Hundreds of thousands of people attended this event and hundreds came through the Vintage Computer Festivalers exhibit where Robert was. Many had questions for Robert. The items that drew the most interest were the KoalaPad and Flexidraw Lightpen. People were surprised that such items had existed for the

Commodore.

In June Robert hosted the Pacific Commodore Expo at the Living Computer Museum in Seattle, now known as the Living Computers: Museum + Labs. There were between 10 and 20 people at the various presentations, plus the casual drop-ins from regular museum visitors, making the total between 50 and 60. The event will be back in 2018 on June 9 and 10.

CommVEx is coming up, and everything is ready to go. Paul Armstrong of Las Vegas will have sales tables, and Al Jackson will provide computer systems as usual. Although it will not affect our plans, the rival event planned for the same weekend has not yet locked up its venue, and their funding may be in question.

For the hardware part of the meeting, Alex showed us his Amiga A600 installed in a MacroSystem Casablanca case. This looked very much like a standard VCR and was originally an Amiga in a case for video-editing. Alex had installed a Vampire 600 accelerator and was continuing to work on the machine. He also brought a Vampire 500 accelerator, this version to go in an Amiga 500 or 2000.

Alex tried to run several Amiga game .ADF's (Amiga Disk Files), but they weren't being recognized by the HxC Floppy Emulator he had installed in the machine. He admitted that he had to tweak the system some more. Near the end of the meeting, the restaurant waitress said that the afternoon group had cancelled their reservation, so we did not have to rush out at 1:30. Even with the more leisurely departure, we were packing up by 2:15 so that Robert could get to Father's Day festivities in Stockton.

Living Computers:

<http://www.livingcomputers.org/?gclid=COvuoJCz0tQCFZG6wAodls8LIA>

Amiga Casablanca:

<http://www.amigahistory.plus.com/casablanca.html>



WHERE TO MEET, WHERE TO EAT

-by Dick Estel

In the 29 years that I've been a member of the Fresno Commodore User Group, we've had a half dozen different meeting places. We've also gone through a few changes in how we deal with lunch.

When I joined the club, we met in a computer lab/classroom at the Fresno Adult School which contained around 20 Commodore 64s. At the time I thought this was normal, but I soon learned that we were very fortunate to have this facility and the equipment it contained. Our ability to use this room was thanks to Barbara Monis, club president at the time and an educator in the local school system. She was able to convince the principal of the adult school to open the doors one Saturday a month, greatly enhancing our meetings.

At that time we also had a weeknight meeting once a month. Over the years it varied between Tuesday and Thursday nights. Originally it was in the meeting room of an insurance office building where one of our former members was a manager.

Of course, there was no food service at these locations, and we did not have a formal lunch practice. A few members who were friends away

from the club usually went to a nearby Wendy's for lunch after the meeting. Eventually an open invitation was extended to any club member to join the lunch group, although only a small majority did so.

After I had been with the club for about three years, circumstances too complicated to go into here forced us to find a new meeting place. In February of 1991 the Saturday meeting moved to Best by Far, a business owned by a local agency that provided services to mentally disabled adults. During the week it served as a training center, and also housed a shop that sold baked goods and other items as a fund raiser. Our evening meeting remained at the office building.

Then in April of 1992 we lost our Thursday meeting place when the company moved to Sacramento. We were able to schedule our evening meetings at Best by Far, but the location was a little out of the way, and not a place people were comfortable with in the evening. After a continued drop in attendance, the evening meetings ended permanently as of January 1993.

Later that year the agency whose building we were using changed the rental policy to an hourly rate, which in essence would have meant a 270% increase in our cost. The club treasury could not begin to support that amount, and again we were on the hunt for a meeting place.

Eventually we learned that there was a public meeting room upstairs at Manchester Center, Fresno's first big shopping mall, and still a fairly busy one. It was necessary to reserve this room on a month by month basis, so we called the first weekday of every month, and were able to use the room virtually every month, starting in September 1993.

This gave us a stable location for a long time, and we met there until November 1998. I don't recall the details, but I think there was a change in

ownership of the mall, and the meeting room was no longer offered to the public. Looking through old newsletters it appears that we held one meeting in a vacant store near the meeting room, then found another long-term location.

The main Fresno County Library downtown had a room that was available to the public, although I think we also had to reserve it month by month. The room itself was reasonably satisfactory, but also had some issues. It was not always available on the day we wanted, and when we were able to schedule on a recurring basis, we found that the people handling this task were somewhat disorganized. We would sometimes arrive for our meeting to find someone else using the room.

Our meeting time was before the regular opening time of the library, and the location was on the second floor. We had to find someone to let us in through the loading dock, put equipment onto a cart, and bring it in and upstairs via elevator. Although we stayed there for two and a half years, when we left, we were happy to say goodbye to the place.

During our time there we usually drove up Blackstone Avenue, the main north-south street from downtown, and stopped at one of many eating places along the way.

The newsletter of April 2001 gives notice that the April meeting has been cancelled due to a scheduling conflict, and it appears that marked our departure from the library. At this time we began a period of wandering, but all of it was back at Manchester Mall. Starting in June, 2001, we met in the Senior Citizens Center there, and were still there as of April 2003. From this month until November 2005, there are no newsletters, because no one had the time or inclination to put one together, but we continued to meet. We lost the use of the Senior Center, but were able to meet in a room controlled by a city councilman, who made it available to the public.

During this time we continued to patronize restaurants along Blackstone or at the shopping mall. Perhaps foreshadowing our current situation, one of our favorites was a very good Mexican place, Café Leon, still operating at Blackstone and Ashlan.

The date and reason for leaving Manchester are lost in that dark period of no newsletters, but by November 2005 President Robert Bernardo had lined up the services of a nearby pizza parlor. This was the Pizza Pit, where owner Stan allowed us to bring in our equipment and take over several tables. Here we enjoyed excellent sandwiches and pizza pie, and lunch became an integral part of our meeting.

On the other hand, there were drawbacks (no surprise, right?) The place was obviously open to the public, and some of the public consisted of young kids who liked to run up and down the aisles, play the loud video games, and even put money in the juke box. Their parents were only slightly less disruptive, since the place had several large TV sets, so sports fans would congregate there and cheer for their favorite team.

There was also the matter of cooling. The place had a swamp cooler, or maybe just an old, almost dead air conditioner. Since summers in Fresno often go above 100 degrees, we had some very uncomfortable meetings.

Still, we made do, and might be there still if Stan had not sold out to a new owner. These people were very cooperative and glad to have us, but they also did some remodeling that marked the beginning of the end. We arrived one day to find that half-wall paneling had been installed, blocking the electrical outlets next to the tables we used. Other tables would have put us too much into the middle of the restaurant's regular operations, so we ended up stringing an extension cord across the room, right through the main

walkway.

It was clear that this could be a big liability issue for the club and the restaurant, and we knew it was again time to move. Our meeting notes show that Stan sold out in April, 2012, and in July I checked out several places, including a different pizza parlor. They could accommodate us, but the layout was not really workable. Then I happened to stop by Bobby Salazar's Cantina, a Mexican restaurant that I had been going to for 15 years or more.

I talked to the manager, and they had a small banquet room which could be partly blocked off by a curtain. There were plenty of outlets, more than enough tables, and best of all, it was almost never in use on our meeting day, so they were willing to let us use it, despite the small size of our group by this time.

Oh yes, it had air conditioning! When the rest of the membership went by to take a look, we all agreed we had found Nirvana, and our first meeting there was in August 2012. We are now almost five years into our occupancy of the best meeting place we've had since the Adult School. It's no accident, but certainly worth mentioning, that the food at the location is excellent. We usually occupy the room from 11 to nearly 5 p.m. and have never felt any pressure to eat up and get out. Hopefully this will be our Commodore home for a long time to come.

PS: I want to end this with a couple of tributes. Looking through back issues of the newsletter to research this article, I saw that Robert became President when we were still in the upstairs meeting room at Manchester, in January of 1997. At 20 years he's long since surpassed Franklin Roosevelt's record. No wonder one of our former newsletter editors called him "President for Life." I was also quite surprised to see the date on the first newsletter produced by current editor Lenard Roach – November-December 2005. Where does

the time go??!! Without Lenard we would not have a newsletter; without Robert we would not have a club. Lenard almost surely holds the record as the longest-serving editor in club history.



PaCommEx 2017 AND BEYOND

-by contributing writer Eric Keith Hill

In June this year in Seattle a small group of hardcore, long-time Commodore fans descended upon the Living Computer Museum. It's a really neat place filled with retro-computing goodness where there was small show called the PaCommEx 2017. Since I live nearby and am a member of the museum, going to the event was a no-brainer as my weekend plans were flexible.

When I got there, not knowing the event agenda and schedule, I arrived during the tail end of a small panel led by the the two original members of Dr. Evil Laboratories, a small hardware/software company based out of Kirkland, WA, that made the SID Symphony, SwiftLink-232, and other things. The company lasted for exactly five years from 1987-1991. If you're interested in the history, you can read about it here --

<https://www.facebook.com/DrEvilLabs/>

In any case, there were about 20 people sitting in

a presentation room listening. I didn't want to interrupt, so I stood in the doorway to catch the end. Some lucky kid (maybe 20 years old?) won the door prize -- a boxed C64. And he was so stoked! That made my heart sing a bit. After it was over, everyone filtered out and walked over to two long tables that had C64s and Amigas on them. I talked to a few of the guys who owned the machines about this and that; it was a lot of fun to "talk shop" like that in person with real people! I know that sounds strange, but it's true. I could tell we were excited just talking about this machine and that upgrade, etc.

I also met a very nice man named Robert Bernardo who, from what I can tell, is one of the longest-running, non-stop C64/Commodore fans I've ever met. He's the president of FCUG – Fresno Commodore User Group - which is still an active user group! He drove all the way from Fresno, with a ton of hardware, just to attend this small event. I was kind of blown away; that's over 900 miles by car!

I just loved it all. I wish we had an active user group in Seattle... Maybe some day I can cobble one together if enough folks emerge and show an interest. In any case, Robert showed me some of his PSUs that he got from the legendary Ray Carlsen, a friend of his whom I've since chatted with online and bought my own replacement PSUs that he hand-made.

In any case, it was eventually time for me to gather up my family at the museum and leave for the evening so I said my good-byes to the few guys I met.

I've since been in contact with Robert and, after talking it over, he has been gracious enough to let me participate next year at PaCommEx 2018 as an exhibitor. I'll set up my own table with at least 3 machines: 2 Amigas and 1 C64. I'm going to do my best to see if I can find others that live in the area between now and then (I've got a year) to

bring their Commodore goodies and memories and make next year's show bigger and better. It was kind of small, to be honest, and I just know we could expand this sucker with a little effort.

Plus, hopefully next year "Alterus" will be able to join like he'd originally planned and maybe even "Robdaemon"! You never know. I'll be there for sure.

My next event will be the Retro Gaming Expo in Portland, OR, in October. What Commodore or retro-computing events are you planning to attend this year?



THE A-EON AMIGA X5000

An alternate universe where the Amiga platform never died

A new Amiga computer emerges that is both modern and an Amiga.

-by Contributing Writer Jeremy Reimer

The Amiga computer was a legend in its time. Back when the Macintosh had only a monochrome 9-inch screen and the PC managed just four colors and monotone beeps, the Amiga boasted a 32-bit graphical operating system in full color with stereo-sampled sound and pre-emptive multitasking. It was like a machine from the future. But the Amiga's parent company,

Commodore, suffered from terminal mismanagement and folded in 1994, just as PCs and Macintoshes were catching up technologically. The platform, like many others before it, seemed to be at an end.

So when a brand new Amiga computer arrived at my doorstep in 2017, you can imagine it was quite a surprise. Accordingly, the Amiga X5000 is a curious beast. In some respects, it's more closely related to its predecessors than either modern PCs or Macintoshes. Yet this is a fully current machine capable of taking on modern workloads. How such a device came to be is a fascinating story, but that's not our goal today—let's dive into what the experience of using the X5000 is like.

The X5000 was developed by A-EON, a company formed by Trevor Dickinson in 2009 to develop new PowerPC-based Amiga computers. It is powered by a custom PowerPC motherboard, supporting a dual-core Freescale CPU at various clock speeds up to 2.5GHz. The Amiga has a long history of PowerPC support, starting with add-on accelerator cards released in 1997 using the old Motorola 603 and 604 chips. And since the release of Amiga OS 4.0 in 2007, the operating system itself was recompiled to be PowerPC-native, and many Amiga applications have been rewritten to support this architecture.

The hardware

The motherboard features a PCI-Express video card slot, up to 64GB RAM, dual gigabit Ethernet ports, built-in sound, and a very curious custom chip. The "Xena" is an XMOS 16-core programmable 32-bit 500 MHz coprocessor that can be configured by software to act as any type of custom chip imaginable. It is connected to a special "Xorro" slot that has the same physical connection as a PCIe x8 expansion card, but it is dedicated to adding more Xena chips as desired. On the back of the motherboard are six USB ports, two Ethernet jacks, and a serial port for

debugging. The system was equipped with an ATI Radeon R9 270X video card, a PCI Ethernet card (the drivers for the on-board dual Ethernet are still being finalized), and a sound card.

The motherboard came enclosed in an attractive black tower case, with a power and reset button and two USB ports on the top for easy access. The model I received was a pre-production version, so it did not have a silkscreened Amiga Boing Ball logo on the outside, but I was assured by Aaron Smith of the independent reseller, Amiga On The Lake, that the final versions would be properly adorned. It did come with a USB mouse that proudly sports the iconic Boing Ball. A keyboard, with the Windows key replaced with a more historically accurate Amiga “A” symbol, is also in development.

Specs at a glance: A-EON Amiga X5000
 OS - AmigaOS 4.1
 CPU - Dual-core Freescale CPU up to 2.5GHz
 RAM - Up to 64GB RAM
 HDD - Kingston 2.5-inch, 250GB SSD drive
 Ports - 6 USB ports, 2 Ethernet jacks, serial port for debugging
 Starting price - \$1,598
 Price as reviewed - \$1,840
 Other perks - ATI Radeon R9 270X video card, DVD-Rom drive, full-screen Neuromancer

The X5000 is very quiet in operation. The CPU has only a small fan that runs at a low speed, and the video card’s fans rarely spin up. There are two SATA ports on the motherboard -- one is connected to a DVD-ROM drive and the other to a Kingston 2.5-inch, 250GB SSD drive.

Overall, the hardware is a mix between custom Amiga parts and standard PC hardware, but the marriage is a happy one. Gone are the days when Commodore would design its own unique cases for each Amiga, but the ability to use off-the-shelf PC cases and components is a worthwhile trade-off.

The AmigaOne X5000 can be purchased as a bare motherboard for \$1,598 or as a completely assembled system. The system I received for review has a suggested retail price of \$1,840.

When you first boot up the X5000, you see an attractive image of the red-and-white Boing Ball logo with the words “AmigaOne X5000.” After the motherboard has finished its power-on checks, the Boing Ball starts a spinning animation. At this point you can hit the Enter key to get to the boot menu.

The X5000 uses U-Boot as its BIOS. Unlike previous AmigaOnes, there is now a friendly boot menu that lets you select an operating system (the menu offered choices for AmigaOS, MorphOS, and Linux, but only AmigaOS was installed on my SSD), show system information, or enter the U-Boot command line.

Booting to AmigaOS 4.1 takes only a few seconds. Unlike with Windows, as soon as you can see the desktop, everything is ready to go. If you have speakers hooked up, the OS will welcome you with a pleasant chime.

The operating system

The Amiga operating system has a long and interesting history. Unlike its contemporaries in the 1980s— the character-mode, single-tasking 640k-limited DOS and the monochromatic MacOS—it was already a fully 32-bit, pre-emptive multitasking operating system at its inception. As such, it had fewer technological leaps necessary to bring it up to date.

AmigaOS 4.0 and 4.1 were developed by Hyperion Entertainment, who were originally contracted by Amiga Incorporated to take the OS 3.1 source code (the last version released by Commodore International) and update it for PowerPC-based systems. Hyperion has gone

above and beyond this original remit, adding many new features to the operating system.

The biggest improvement was adding memory protection, which was done in version 4.0. This new version of 4.1 (it could easily have been called 4.2, but instead is called "AmigaOS 4.1 Final Edition") adds a bunch of features, including a new "NG" file system that supports drives over 2TB, a new unified "Retargetable graphics" (RTG) display system that now completely replaces the old Picasso96 libraries, support for memory beyond 2GB, a new installer, various improvements to the Workbench graphical user interface, and even small quality-of-life improvements such as a tabbed interface for the command shell.

Operating AmigaOS 4.1 will be instantly familiar to veteran Amiga users but may be initially confusing to those coming from Windows, MacOS, or Linux platforms. In the upper-left corner of each window is a close box, but in the upper right are three icons: the first is "Iconify," which reduces the current window to an icon on the desktop (the application, of course, continues to run in the background), the second will toggle between the last two user-selected window sizes, and the last one is a toggle that moves the window to either the front or the back of the stack, like layers in Photoshop.

Some applications that use the "MagicWorkbench" GUI development library add additional options in a pull-down menu where the "Iconify" button would normally be.

In addition to manipulating these windows on the main Workbench screen, most Amiga applications can be run full-screen at any resolution you choose, much like games allow under Windows. You can toggle between these screens by pressing the Amiga key plus "M," but you can also use the right mouse button to pull down any screen vertically to see what is happening on the screen

behind it. The classic Amiga achieved this by using clever tricks with the custom hardware—modern Amigas can simply use fast video cards to do the same thing. One small thing has been lost, however; the classic Amiga could display screens of different resolution and color depth on top of each other, but no modern video card has this ability.

The operating system comes with a bunch of bundled software, including music and video players, disk partitioning and formatting software, a PDF reader, a screenshot tool, and a default Web browser (just as on Windows, the primary use of this Web browser is to download other Web browsers). The OS is extremely configurable: many aspects of the GUI can be altered, including setting custom image backgrounds for each folder. File management is similar to Classic MacOS in that each folder appears as a separate window by default, and the operating system can remember window placement and icon display type. AmigaOS has always supported variable-sized icons, and each icon can have a separate image for its unselected and selected states.

The software

AmigaOS 4.1 supports two different flavors of Amiga software: "classic" software that ran on the Motorola 680x0 series of processors and modern software that has been recompiled to run natively on the PowerPC. Classic applications that ran directly on the Workbench GUI run seamlessly, launching a fast Just-In-Time (JIT) 68020 emulator in the background. The JIT subsystem runs so quickly that these applications launch instantly and are indistinguishable from their modern counterparts.

For games, which usually bypassed the operating system and hit the classic Amiga hardware directly, Hyperion and A-EON have released a tool called RunInUAE, which lets you run .ADF files (the Amiga Disk Format for imaging old 3.5"

floppy disks) in a customizable Amiga emulator, which includes all the old ROM and Workbench images for classic Amigas such as the 500 and 1200. This emulator even recreates the sound of old Amiga floppy drives, allowing you to run classic games like *Shadow of the Beast* and *Neuromancer* in a full-screen session. The bundle I received came with a collection of classic Cinemaware games, including *Defender of the Crown*. The experience is much more seamless than using emulators like WinUAE on Windows-based systems—most games run without any configuration just by double-clicking on the .ADF icon.

For Amiga enthusiasts, this is the best way to run their collection of old and new software. There is even a program called *DiskImage* that lets you mount .ADF images as virtual floppy drives to install legacy Amiga software directly on OS 4.1. Given the tiny (1.76 MB) size of these images and the speed of the X5000, this can provide amusing results. When I was installing *Final Writer 97*, for example, the installer would prompt for the next disk, then as soon as I clicked on the image it would automatically mount, install, and ask for the next disk instantaneously.

While these legacy applications are fun (and fast!) to play with, there is one application that is more important than any other to a modern user, and that is a Web browser. There are several to choose from on Amiga OS 4.1, but the best one I found was the *Odyssey* browser.

Odyssey is a port from *MorphOS*, an alternative Amiga-like operating system, and it is based on *WebKit*, the same browsing engine that powers *Google Chrome* and *Safari*. As such, it is remarkably compatible with modern websites. In earlier years, for example, Amiga computers had considerable difficulty playing *YouTube* videos, because *Adobe Flash* was not available for the Amiga platform. Now that everything is in *HTML5*, these videos are playable. Similarly, I

was able to use *Google Docs* with no problems, and I could run the full version of *Gmail* as long as I set the browser to spoof as *Safari* for *Macintosh*.

Not all sites work, and a few have minor formatting issues, but overall this is the most modern browsing experience ever seen on an Amiga. This goes a long way to making the X5000 into a computer that you can get real work done on.

In addition to the browser, there are a number of OS 4 native applications available. I tried out the *PowerPC* version of *PageStream*, a desktop publishing package that lets you load and edit PDF files. I had a lot of fun with *Hollywood*, which is a presentation package (sort of like *PowerPoint* on steroids) that was written first for the Amiga and then ported to other platforms. It lets you add animation and sound to a presentation and then compile the result into a standalone package that can run on any of its supported platforms.

I wanted to try out some software that supported the “Xena” XMOS chip, but at the moment there isn’t any available. *Jamie Kruger* is currently working on developing native *AmigaOS4* development tools for the chip and has written a blog post detailing more information about his project. When that is complete, X5000 owners will be able to program the Xena chip directly from the Amiga desktop. The chip contains its own *Real-Time Operating System (RTOS)* built-in hardware, which lets developers create software solutions for things that would normally require hardware chips to achieve. For example, it could be programmed to accurately emulate custom chipsets from older computer and arcade platforms or to create a micro-controller for a robotics project.

Conclusions

The X5000 is a strange beast. It’s like a window into an alternate universe where Commodore never went bankrupt and the Amiga platform never died. The fact that both the hardware and operating system were produced at all is a monument to the passion and dedication of the folks at A-EON and Hyperion Entertainment.

It is by no means the fastest PC ever made, but it is certainly the fastest Amiga ever produced. The operating system harkens back to the days when computing was more personal, less corporate, and a lot more fun. Although the X5000 is not inexpensive, and there are those who will bemoan the fact that there isn’t a build of AmigaOS that will run on cheap ARM-based hardware like the Raspberry Pi, I think that A-EON’s plan to produce aspirational hardware is probably the right one. I have a Raspberry Pi, and I’ve run a few different operating systems on it for fun, but it has never amounted to much more than playing around.

The X5000 is different. It feels like an exotic car: expensive, beautifully engineered, and unique. If you bought one, you’d be one of a proud few, a collector and enthusiast. It practically begs for you to dig in and tinker with the internals — the system comes with an SDK, a C compiler, Python, and a huge amount of documentation for things like MUI, the innovative GUI library. On top of that, there is the mysterious XMOS chip, crying out for someone to create software that leverages its strengths. It feels like a developer’s machine.

Should you buy one? That depends very much on what your needs are. If you are simply after the best price-to-performance ratio for a desktop computer, this is not the machine for you. But if you are interested in something very different, something that is pleasant and fun to use, and yet can still be used for modern desktop workloads, then the X5000 is worth a look. I have had this review unit on my desktop for over a month now,

and frankly I don’t want to give it back.

The good
A new Amiga exists in 2017!
Runs all classic Amiga software (including games) and new PowerPC-compiled Amiga software.
The Odyssey web browser can handle many current web applications.
The Xena XMOS chip is interesting from a hobbyist developer perspective.

The bad
It's very expensive!
There is relatively little new Amiga software.
The Odyssey web browser still has a few compatibility issues.
There is no Xena-specific software available yet.

The ugly
The difficulty level required to convince my wife that I need to buy another \$2000 desktop computer.

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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 in the meeting room of Bobby Salazar's Restaurant, 2839 North Blackstone Ave., Fresno, CA. The meetings generally include demonstrations, discussion, and individual help.

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