



December 2020

The MCCC News

The Metroplex Commodore Computer Club

Serving Dallas/Fort Worth Since 1983

Meeting at Dallas Makerspace

<For those willing to chance it...>

Stephen Wylie has scheduled a meeting room for us at the Dallas Makerspace for Saturday, December 12, from 2:00 to 5:00 PM. Their address is:

Dallas Makerspace
1825 Monetary Ln, Unit 104
Carrollton, TX 75006

When people arrive, they shall go to the Suite 102 entrance (the one with the wheelchair-accessible ramp) and ring the doorbell if the door is locked. There are electronic kiosks in this front room with a liability waiver that all new guests must sign. Once this is done, the meeting room is just to the left of those kiosks. (Since this is the first time we're meeting at DMS, I thought to book the North Lobby Classroom, rather than the Interactive Classroom, just so we don't have to go through additional locked doors on the inside. It might be smarter to book the Interactive Classroom once folks know the layout.)

Stephen has offered to give everyone a tour of DMS after we're done with the meeting.

Ken Woolridge has acquired a new power supply for his A4000 tower which will not boot. So the plan is to replace it and see if that fixes things.

...Ned Kelly

David Bowie and the Internet

To mark Internet Day on October 29th, the BBC resurfaced Jeremy Paxman's 1999 interview with David Bowie, in which the two discussed the broader implications of the Internet. Paxman held the firm position that the Internet was merely a tool, but Bowie's thoughts were much more prescient. (Keep in mind that Bowie had launched his own Internet service provider, BowieNet, in 1998.) Bowie talked about the fragmentation of society that he saw as beginning in the 1970s and (correctly) predicted that the Internet would further fragment things away from a world where there were "known truths and known lies" toward a world where there are "two, three, four sides to every question," something that would be simultaneously "exhilarating and terrifying" and would "crush our ideas of what mediums are all about."

In 1999, Bowie couldn't have predicted YouTube, social media, information wars, and the emergence of a "post-truth" era, but he had the insight to know that the Internet was more than just another fax machine. "It's just a tool, isn't it," Paxman asked, clearly skeptical of Bowie's ideas. "No, it's an alien lifeform," Bowie replied with a grin. Game, set, and match to David Bowie, who died in 2016.

...<https://tidbits.com/2020/11/01/david-bowies-1999-insights-into-the-internet/>

The Vampire V4 Stand-Alone System

It's been an active time—new month, new holiday season, new US President, assuming the old one can be hosed out of the building. Unfortunately, thanks to a command decision from the AmiTech Prez and myself, this month's meeting is called off, thanks to various personal issues and tightening COVID-spike restrictions.

For those of you who missed last month's meeting, you would have learned the "SURPRISE!" demo plugged then was the debut of my new Vampire V4 stand-alone system. It was a bit of a rough demo, as I had some self-imposed software issues, but with some updates since then, things are running smoother now, though I still have a way to go. Until our next opportunity for in-person meeting, I will give my early impressions of the V4 stand-alone here.

For several years now, I have explored various available options with the goal of replacing my aged Amiga 4000T system, with the goal of doing everything I do with it currently, while improving on it where possible. Things I still use (need) my A4000T to do include scanning artwork as my HP SCSI scanner is one of the only to fit the page size I use, run software that requires the Amiga hardware such as older graphic software and most games, and generally dealing with software and other stuff that gets flaky on non-classic hardware for whatever reason. I've used PowerPC systems running MorphOS with much success, but while they offer much greater speed and power than stock Amiga hardware, I can't expect to deal with

software that expects an Amiga chip-set to be there. Emulation has grown in capability a great deal over the years, allowing PCs, phones/tablets, and the Raspberry Pi to ape the Amiga hardware at enhanced speeds, but those can have their own issues, and are not quite as ‘pick up and go’ as some may want, especially if they’re using it for something more than retro gaming.

This brings us to the Vampire hardware series, which started as enhanced accelerator cards for the Amiga 600 and 500, and grew from there. I put together an A600 system with a Vampire card some time back. The FPGA-based Vampire 600 V2 offers a ‘68080’ CPU, over double the speed of a fast 68060 or 68040 accelerator, ‘SAGA’ graphics which act as a built in video card which outputs via HDMI, and a slot for micro SD media. A separate issue cropped up, however. As the SAGA video and graphics that use Amiga video modes use separate outputs, you will either require two monitors or need a switch for the inputs. Over the Vampire’s history, there was the intent of building an implementation of the Amiga’s AGA chip set into the FPGA on the card, which would use the HDMI output, and it has been done in a beta form not generally available. Apparently an accurate AGA implementation along with the CPU/video/other Vampire features has proved challenging to fit within the limits of the FPGA chip on the V2 card series, so development has shifted to the V4 and it’s next-gen FPGA chip, hopefully bringing it back to the V2 cards when and if they figure out how to pack everything in. So for now V2 users must use the split video outputs between SAGA and your OCS/ECS Amiga video (or AGA for V1200), or an incomplete beta AGA implementation.

This leads us to the V4 series, currently only available in stand-alone system form, but versions as Amiga add-ons will be on the way eventually. The stand-alone is what I wanted, and got, and that’s what I’ll be going into here. The V4 stand-alone debuted in early form at a Ger-

man Amiga show in 2019, selling out their limited stock in minutes. To purchase your own, you go to ApolloAccelerators.com and put your name on a waiting list. I was on the waiting list a little over a year since I declared my initial interest, quietly building up funds in anticipation for when I could actually buy it. The wait actually worked to my advantage somewhat this year, as I ran into problems and had to fix and/or replace other systems of mine, and I had this handy stash of Vampire money ready to go, which I would then slowly rebuild.

While I did end up waiting a long time, I wasn’t jerked around the way I was trying to obtain the V600, and in early October, I finally received my Vampire V4 stand-alone in the mail. There was a little bit of misestimated fees, and I paid a bit more than the final cost, so a mouse was added to my order, which turned out to be a good thing as I would learn. You can get the system as a bare board, or as a full system with case, power supply, and storage, which is what I chose. My complete system, including case, power supply, IDE adapter with CF card, and a mouse, and all relevant international shipping and fees, wound up costing me roughly \$700 US, all told, though you can probably save some money sourcing your own parts. The case is a nice aluminum ‘sleeve’ that the board and cover slot into, held together by screwing in the end-caps. The power supply is a mini-USB charger type, and I recommend getting that outputs 2 to 3 amps for best results. You’ll probably want a switch of some kind in there too, as like the Raspberry Pi systems, the V4 doesn’t have its own power switch on-board. Mine came with a CF adapter for the on-board IDE interface (similar to that on the Amiga 600 or 1200) and a 16 GB Compact Flash card with “ApolloOS” included. The mouse I received was a cheap gaming-style mouse with several unnecessary buttons, which lights up in multiple colors, looking garish.

Delving into the Vampire system itself, the hardware is built around the Altera Cyclone 5 FPGA chip, as opposed to the Cyclone 3 of the V2 se-

ries, 512 megabytes of RAM (split between chip and fast RAM), IDE interface for the main ‘hard drive’, HDMI video output, Ethernet, a micro SD card slot, two DB9 ports for Amiga mice or joysticks, and 2 USB ports. Currently the USB ports are not general-use, but specifically for plugging in a keyboard and mouse. As it works as a semi-direct hardware interface, it’s picky about what mice and keyboards will work, so be sure to check the Apollo site first. It would be nice if the USB ports could be used for storage devices or other applications, and it’s possible a future Vampire core update will make that happen, but for now the Micro SD slot is the main external drive for getting data in and out of the machine.

Speaking of “core updates”, the hardware manifested in the FPGA chip can be updated as improvements and fixes come out, and in fact there have been two updates to the V4 made available since I got it at the start of October. (I’m scared to imagine what the system was like for those early adopters who got a debut system last year) To update the core, you will need a “USB Blaster” device which connects another computer to a header on the Vampire board, and the “Quartus Programmer” software for Windows or Linux. I’ve had poor luck with the Linux software so far, so I’ve been bringing my Vampire to the Veep’s place and his useful-in-this-instance Windows machine. Flashing the FPGA core is an only slightly scary process, and works most of the time. (and just try again if it doesn’t)

Having the Cyclone 5 FPGA chip on board, the V4 can accommodate an implementation of the Amiga AGA chip set along with the fast 68080 CPU and SAGA for enhanced graphics and audio. These work through software much the same way as any Amiga with add-on video and sound cards. The video and audio output together through the HDMI port. It’s worth noting that low-resolution screen modes, such as the 320x200 NTSC or PAL modes, are automatically scan-doubled to work better with the HDMI output and newer

monitors. Those modes also display with an optional scan line effect, which can be switched on and off with a keystroke. I will warn that it is probably a good idea to include a video scan converter between the Vampire and your monitor, at least until you are certain that the video modes you display are supported without extra help.

Supposedly the 68080 CPU in the core has a greater level of backward compatibility than even a 68040 or 68060 accelerator, as it leaves in the legacy CPU functions that were taken out in the newer chips. The hardware specs are impressive, and are likely to improve further with future core updates.

On the software side of things, the Vampire V4 ships with an AROS-based Kickstart, apparently so the Apollo team can avoid the intellectual property pitfalls of the Amiga Kickstart ROM by using an open-source alternative. (and the Apollo team has been making a lot of enhancements to the 680x0 version of AROS in the process).

It is possible to change to an actual Amiga kickstart ROM file when flashing the core, if that works better for you. Included with mine on the CF card was “Apollo OS”, a reasonably full OS package (also built on AROS) including a lot of demos, games, and software, though I’m unsure about the exact legal status of it all. To give an example, Apollo OS uses Directory Opus 5 as a default workbench replacement, though you have other options within the OS. If you want to try out other OS options, it’s about as simple as putting together a CF card on your PC of choice, and swapping out the card on the Vampire. Another popular option is known as Coffin OS, which is a full Amiga distro available through apollos.weebly.com. While the legal status of software on Apollo OS seems to be “not too sure, but it looks like they’re trying to do the right thing, more or less”, Coffin OS is more “LOL, whatever!”, being a full Amiga OS distro based on 3.9, with lots of games and software, which

surely can’t all fall under fair use and/or abandonware.

Other options exist, including putting together your own OS from software you have personal access to, but these two are the ones currently best suited to getting started with a new V4. There are some minor issues with the AROS kickstart combined with the proper Amiga OS and software, but fewer than you might expect, and it’s hard to know what to blame on the kickstart or the early AGA chip implementation. It’s not perfect, to be sure, but I’ve been pretty impressed with how well the V4 can run hardware-banging Amiga games through WHDLoad. Not everything yet, certainly, but compatibility seems to increase with each core update.

The best way to describe the Vampire V4 stand-alone system is a work-in-progress, as future FPGA core updates will add features, fix bugs, and improve compatibility and the system overall. As it stands now it could still use some work. I wish the USB ports were useful for more than just mouse, keyboard, and/or game controllers at the moment (and supported hubs), but that’s a feature a future update might address. The SAGA graphics modes are limited, the most HD mode being a 960x540 affair which none of my monitors seems to like when it is supposedly capable of at least 720P, but that is another thing promised in upcoming core updates (possibly the one I haven’t yet installed as of this writing.)

As I said at the start of this article, I have been looking for something to take over for my A4000T, to allow it to retire (or in case it retires itself forcibly, as old computers occasionally do). Of all the options I have tried so far, I believe the Vampire V4 stand-alone stands the best chance of actually taking the place of my A4000T, provided it matures a bit. It is a very fast, very compatible Amiga clone. It is not faster than a heavy-duty PowerPC system running OS4 or MorphOS, or a fast PC running an emulator with the brakes off, but it

does a good job being an “Amiga” at both a hardware and software level, for a more modern age and technology level. All my initial tests are promising so far, running software I use on my A4000T, though *Worms the Director’s Cut* may need a few more core updates to get right (right now the instrument panel does not appear). One thing the V4 can’t currently do however, is connect to my monster HP SCSI scanner. If that’s all, however, I can probably keep the 4000 going as long as the scanner keeps going, or perhaps press the under-utilized Vampirized A600 into service once again.

...Eric Schwartz
From the AmiTech Gazette
Dayton, Ohio, November 2020

SoundBeamer 1.0

Spend a bit of time with a pair of high-quality wireless earbuds and you’ll soon discover how nice it is to not have to worry about any annoying cords. But what if you could listen to your favorite music without headphones entirely? A new audio device promises to give you the ability to do just that.



Noveto Systems has just unveiled the SoundBeamer 1.0, a new gadget that has the potential to revolutionize the way we listen to music, according to the Associated Press. That’s because you don’t need a pair of headphones or a speaker to listen to the device; instead, it “beams” music and sounds directly into your head.

The Israeli audio company is promis-

ing an entirely new way of experiencing sound with the SoundBeamer. Using a 3-D sensing module, the device, which looks like a chunky Bluetooth speaker, locates and tracks the position of your ears in real time and projects ultrasonic waves at them. This creates “sounds pockets” around both ears, in which you, and you alone, can hear full three-dimensional sound. While moving your head out of the beam’s path will cause the audio to disappear, the device has a setting that allows it to follow the movement of your head.

And, since you aren’t wearing headphones, you’ll also be able to clearly hear other sounds around you. Because of this, the company believes the tech will have practical uses both in the office and at home.

“This is what we dream of,” SoundBeamer product manager Ayana Wallwater told the AP. “A world where we get the sound you want. You don’t need to disturb others and others don’t get disturbed by your sound. But you can still interact with them.”

While Novetto officially launched the SoundBeamer last week, you won’t be able to get your hands on it just yet. The company is hoping a “smaller, sexier” version of the device to go on sale in time for next year’s holiday season.

...<https://robbreport.com/gear/audio/noveto-systems-soundbeamer-audio-device-1234581593/>

Raspberry Pi OS Update

Well, in a year as disrupted and strange as 2020, it’s nice to know that there are some things you can rely on, for example the traditional end-of-year new release of Raspberry Pi OS, which we launch today. Here’s a run-through of the main new features that you’ll find in it.

Chromium

We’ve updated the Chromium browser to version 84. This has taken us a bit longer than we would have liked, but it’s always quite a lot of work to get our video hardware acceleration integrated with new releases of the browser. That’s done now, so you should see good-quality video playback on sites like YouTube. We’ve also, given events this year, done a lot of testing and tweaking on video conferencing clients such as Google Meet, Microsoft Teams, and Zoom, and they should all now work smoothly on your Raspberry Pi’s Chromium.

Version 84 of the Chromium web browser

There’s one more thing to mention on the subject of web browsers. We’ve been shipping Adobe’s Flash Player as part of our Chromium install for several years now. Flash Player is being retired by Adobe at the end of the year, so this release will be the last that includes it. Most websites have now stopped requiring Flash Player, so this hopefully isn’t something that anyone notices!

PulseAudio

From this release onwards, we are switching Raspberry Pi OS to use the PulseAudio sound server.

First, a bit of background. Audio on Linux is really quite complicated. There are multiple different standards for handling audio input and output, and it does sometimes seem that what has happened, historically, is that whenever anyone wanted to use audio in Linux, they looked at the existing libraries and programs and went “Hmmm... I don’t like that, I’ll write something new and better.” This has resulted in a confused mass of competing and conflicting software, none of which quite works the way anyone wants it to!

The most common audio interface, which lies underneath most Linux systems somewhere, is called ALSA, the Advanced Linux Sound Architec-

ture. This is a fairly reliable low-level audio interface — indeed, it is what Raspberry Pi OS has used up until now — but it has quite a lot of limitations and is starting to show its age. For example, it can only handle one input and one output at a time. So for example, if ALSA is being used by your web browser to play sound from a YouTube video to the HDMI output on your Raspberry Pi, nothing else can produce sound at the same time; if you were to try playing a video or an audio file in VLC, you’d hear nothing but the audio from YouTube. Similarly, if you want to switch the sound from your YouTube video from HDMI to a USB sound card, you can’t do it while the video is playing; it won’t change until the sound stops. These aren’t massive problems, but most modern operating systems do handle audio in a more flexible fashion.

More significant is that ALSA doesn’t handle Bluetooth audio at all, so various other extensions and additional bits of software are required to even get audio into and out of Bluetooth devices on an ALSA-based system. We’ve used a third-party library called bluez-alsa for a few years now, but it’s an additional piece of code to maintain and update, so this isn’t ideal.

PulseAudio deals with all of this. It’s a piece of software that sits as a layer between all the audio hardware and all the applications that send and receive audio, and it automatically routes everything to the right places. It can mix the audio from multiple applications together, so you can hear VLC at the same time as YouTube, and it allows the output to be moved around between different devices while it is playing. It knows how to talk to Bluetooth devices, and it greatly simplifies the job of managing default input and output devices, so it makes it much easier to make sure audio ends up where it is supposed to be!

One area where it is particularly helpful is in managing audio input and output streams to web browsers like Chromium; in our testing, the use of

PulseAudio made setting up video conferencing sessions much easier and more reliable, particularly with Bluetooth headsets and webcam audio.

The good news for Raspberry Pi users is that, if we've got it right, you shouldn't even notice the change. PulseAudio now runs by default, and while the volume control and audio input/output selector on the taskbar looks almost identical to the one in previous releases of the OS, it is now controlling PulseAudio rather than ALSA. You can use it just as before: select your output and input devices, adjust the volume, and you're good to go.

The PulseAudio input selector

There is one small change to the input/output selector, which is the menu option at the bottom for Device Profiles. In PulseAudio, any audio device has one or more profiles, which select which outputs and inputs are used on any device with multiple connections. (For example, some audio HATs and USB sound cards have both analogue and digital outputs — there will usually be a profile for each output to select where the audio actually comes out.)

The PulseAudio profile selector

Profiles are more important for Bluetooth devices. If a Bluetooth device has both an input and an output (such as a headset with both a microphone and an earphone), it usually supports two different profiles. One of these is called HSP (HeadSet Profile), and this allows you to use both the microphone and the earphone, but with relatively low sound quality — equivalent to that you hear on a mobile phone call, so fine for speech but not great for music. The other profile is called A2DP (Advanced Audio Distribution Profile), which gives much better sound quality, but is output-only: it does not allow you to use the microphone. So if you are making a call, you want your Bluetooth device to use HSP, but if you are listening to music, you want it to use A2DP.

We've automated some of this, so if you select a Bluetooth device as the

default input, then that device is automatically switched to HSP. If you want to switch a device which is in HSP back to A2DP, just reselect it from the output menu. Its microphone will then be deactivated, and it will switch to A2DP. But sometimes you might want to take control of profiles manually, and the Device Profiles dialog allows you to do that.

(Note that if you are only using the Raspberry Pi's internal sound outputs, you don't need to worry about profiles at all, as there is only one, and it's automatically selected for you.)

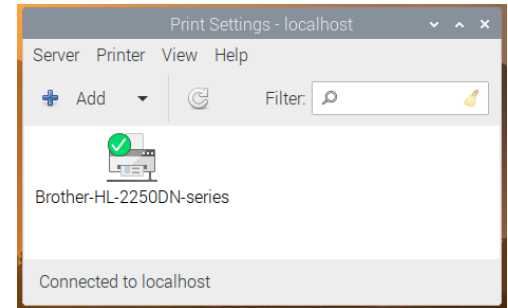
Some people who have had experience of PulseAudio in the past may be a little concerned by this change, because PulseAudio hasn't always been the most reliable piece of software, but it has now reached the point where it solves far more problems than it creates, which is why many other Linux distributions, such as Ubuntu, now use it by default. Most users shouldn't even notice the change; there may be occasional issues with some older applications such as Sonic Pi, but the developers of these applications will hopefully address any issues in the near future.

Printing

One thing which has always been missing from Raspberry Pi OS is an easy way to connect to and configure printers. There is a Linux tool for this, called CUPS, the Common Unix Printing System. (It's actually owned by Apple and is the underlying printing system used by macOS X, but it is still free software and available for use by Linux distributions.)

CUPS has always been available in apt, so could be installed on any Raspberry Pi, but the standard web-based interface is a bit unfriendly. Various third-party front-end tools have been written to make CUPS a bit easier to use, and we have decided to use one called system-config-printer. (Like PulseAudio, this is also used as standard by Ubuntu.)

So both CUPS and system-config-printer are now installed as part of Raspberry Pi OS. If you are a glutton for punishment, you can access the CUPS web interface by opening the Chromium browser and going to <http://localhost:631>, but instead of doing that, we suggest just going into the Preferences section in the main menu and opening Print Settings.



This shows the system-config-printer dialog, from which you can add new printers, remove old ones, set one as the default, and access the print queue for each printer, just as you should be familiar with from other operating systems.

Like most things in Linux, this relies on user contributions, so not every printer is supported. We've found that most networked printers work fine, but USB printers are a bit hit-and-miss as to whether there is a suitable driver; in general, the older your printer is, the more likely it is to have a CUPS driver available. The best thing to do is to try it and see, and perhaps ask for help on our forums if your particular printer doesn't seem to work.

This fills in one of the last things missing in making Raspberry Pi a complete desktop computer, by making it easy to set up a printer and print from applications such as LibreOffice.

Accessibility

One of the areas we have tried to improve in the Desktop this year is to make it more accessible to those with visual impairments. We added support for the Orca screen reader at the start of the year, and the display magnifier plugin over the summer.

While there are no completely new accessibility features this time, we have made some improvements to Orca support in applications like Raspberry Pi Configuration and Appearance Settings, to make them read what they are doing in a more helpful fashion; we've also worked with the maintainers of Orca to raise and fix a few bugs. It's still not perfect, but we're doing our best!

One of the benefits of switching to PulseAudio is that it now means that screen reader audio can be played through Bluetooth devices; this was not possible using the old ALSA system, so visually-impaired users who wish to use the screen reader with a Bluetooth headset or external speaker can now do so.

One feature we have added is an easy way to install Orca; it is still available through Recommended Software as before, but given that is not easy to navigate for a visually-impaired person, there is now a keyboard shortcut: just hold down ctrl and alt and press the space bar to automatically install Orca. A dialog box will be shown on the screen, and voice prompts will let you know when the install has started and finished.

And if you can't remember that shortcut, when you first boot a new image, if you don't do anything for thirty seconds or so, the startup wizard will now speak to you to remind you how to do it...

Finally, we had hoped to be able to say that Chromium was now compatible with Orca; screen reader support was being added to versions 8x. Unfortunately, for now this seems to only have been added

for Windows and Mac versions, not the Linux build we use. Hopefully Google will address this in a future release, but for now if you need a web browser compatible with Orca, you'll need to install Firefox from apt.

New hardware options

We've added a couple of options to the Raspberry Pi Configuration tool.

On the System tab, if you are running on Raspberry Pi with a single status LED (i.e. a Raspberry Pi Zero or the new Raspberry Pi 400), there is now an option to select whether the LED just shows that the power is on, or if it flickers off to show drive activity.

On the Performance tab, there are options to allow you to control the new Raspberry Pi Case Fan: you can select the GPIO pin to which it is connected and set the temperature at which it turns on and off.

How do I get it?

The latest image can be installed on a new card using the Raspberry Pi Imager, or can be downloaded from our Downloads page.

To apply the updates to an existing image, you'll need to enter the usual commands in a terminal window:

```
sudo apt update  
sudo apt full-upgrade
```

(It is safe to just accept the default answer to any questions you are asked during the update procedure.)

Then, to install the PulseAudio

Bluetooth support, you will need to enter the following commands in the terminal window:

```
sudo apt purge bluealsa  
sudo apt install pulseaudio-module-bluetooth
```

Now reboot.

To swap over the volume and input selector on the taskbar from ALSA to PulseAudio, after your Raspberry Pi has restarted, right-click a blank area on the taskbar and choose Add / Remove Panel Items. Find the plugin labelled Volume Control (ALSA/BT) in the list, select it and click Remove; then click the Add button, find the plugin labelled Volume Control (PulseAudio) and click Add. Alternatively, just open the Appearance Settings application from the Preferences section of the Main Menu, go to the Defaults tab and press one of the Set Defaults buttons.

Update: Some people have reported that some applications are ignoring the effect of the PulseAudio output switcher. This is probably caused by an old ALSA configuration file still being on the system. Once you have updated, execute the following in a terminal window, which should fix this:

```
rm ~/.asoundrc
```

As ever, do let us know what you think in the comments.

...<https://www.raspberrypi.org/blog/new-raspberrypi-os-release-december-2020/>

December 12 Meeting — Dallas Makerspace
1825 Monetary Ln. Carrollton, Texas 75006

MCCC 2507 Tamaron Cove Cedar Hill, Texas 75104

<http://www.amigamccc.org>

