Subject: New PARIS System
Posted by Rich.Kelley on Thu, 16 Jan 2020 06:38:03 GMT
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I'm building a new PARIS system. After almost 20 years on a now ancient Asus/AMD mobo running a four card, four monitor system I decided I needed to update. Actually I was pushed into it because the Asus system isn't stable anymore. It crashes a lot. I have music I want to record and dealing with this crash-machine was making me not want to start.

Tonight was the successful completion of step 1: The expansion chassis.
I looked at the VirtuaVia that many here recommended, but ended up getting a 13 card Magma on ebay. I got both a PCI and a PCIe host card for it (also from ebay). I had to get the cable from Magma (now called One Stop Systems). Interestingly, their headquarters is located 10 minutes from my house. I'd like to get a quieter power supply.

Anyway, I was able to bring up the Magma on a spare Asus system running XP I have here using the PCI host card. I loaded PARIS on this old system using Mike's fantastic installer. I loaded a spare EDS in the Magma and used a 442 for I/O. With a little fiddling PARIS loaded and correctly recognized the hardware.

I'm calling this a win and relaxing with a lovely Dragon's Milk Stout.

Next step is assembling a new system.

I'll start with Mike's recommendations for a mobo. Anything newer I should look at? I'm thinking Windows 7 32 for an operating system. I've kept all of my PARIS systems very software lean and off the internet so no anti-virus software either. I'd like to upgrade the monitor situation too so I'll probably need a video card.

This next step will take a while, but I'll keep y'all updated.

If anyone has thoughts/advice please post here.

Subject: Re: New PARIS System
Posted by John Houston on Thu, 16 Jan 2020 21:31:30 GMT
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Congrats! I need to do something with mine. My old mac G4 is TIRED!!

Subject: Re: New PARIS System
Posted by Rich.Kelley on Fri, 17 Jan 2020 01:43:17 GMT
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The Magma route was easy once I figured out which one to get.

Here's the Magma info in case you're interested:
You want either the 13 slot P13R or the 7 slot P7R4. With the 13 slot you'll also need a card that goes into the Magma chassis: PCIEIF68. That's the card that the cable attaches to on the Magma end. For the 7 slot Magma the cable connection on the Magma side is part of the chassis.

Other Magma chassis' look similar but might not fit the EDS card. I know for sure that some don't fit. The EDS card uses one of the earlier standards for a PCI card.

The cable you need is either the 1 m long CBL1HF or the 1.5 m long CBL1.5HF.

For the host computer you can get either a PCI or a PCIe card.
- PCI - PCIHIF68 (very similar number to the 13 slot Magma side card)
- PCIe - PEHIFX1

I got both for flexibility.

You can buy new at One Stop Systems for $2500, or go used on ebay for $300-500. I had to buy all the parts separately, and get the cable new.

No drivers were necessary. XP and Windows 10 recognized the hardware.

Subject: Re: New PARIS System
Posted by John Houston on Fri, 24 Jan 2020 05:54:08 GMT
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Thanks for the info!

Subject: Re: New PARIS System
Posted by Rich.Kelley on Sun, 26 Jan 2020 19:18:34 GMT
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Silence the Magma

As I've been researching computer systems and components I've run across the whole idea of ultra quiet and silent PCs. This led me to a sub-project of tackling the noise generated by the Magma.

The Magma has been working great so far, but it is a noisy beast. It's fan noise from the power supply and two 120 mm case fans.

Solution
I won't bore you with the process. Here's what I decided on:

Power Supply - Seasonic Prime Titanium 600 W
This unit is fanless. Zero noise. It's not cheap, but I'm curious how quiet I can get this whole

system now. I'm going to use this on the computer too.

Case Fans - Noctua NF-S12A FLX
This is a three wire, 12V fan. It can be run at three speeds.

700 rpm - 38.7 CFM - 7.4 dB(A)
900 rpm - 49.0 CFM - 10.7 dB(A)
1200 rpm - 63.3 CFM - 17.8 dB(A)

The two slower speeds are achieved by using a small cable that comes with the fan that has a resistor on the power line. The lowest speed is essentially inaudible, but it's hard to feel a lot of airflow. You have to put your ear up to the fan grill to hear it and feel any airflow. The middle speed is pretty close to that level of quietness but the airflow definitely improves. The highest speed is audible from a few feet with more noticeable airflow. I went with the middle choice to get more air flow but still basically silent. With the 13 slots I can space out the EDS cards. I also put in PCI slot covers with air vents.

[UPDATE: The EDS cards get pretty warm. I decided on a 5 card system, so I took off the throttling cable and went with the highest speed. Under my desk it's still basically inaudible.]

There also a Noctua ULN variant of this fan. I'd recommend just getting the FLX. They're mechanically the same fan. The motor electronics or windings is where the difference is. The FLX can hit almost the same noise and flow specs as the ULN, and has the top speed option with the highest flow if you need to go there.

Result
The Magma is now basically inaudible. Under a desk, a few feet away, I'd record an acoustic guitar next to it. By comparison the MEC is louder.

System
I'll have more on the system soon. There's a crazy amount of info out there and I have to come up to speed on all of it.

Subject: Re: New PARIS System
Posted by Rich.Kelley on Sat, 01 Feb 2020 17:04:46 GMT
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Here's the system I'm thinking about. Interested in any thoughts/opinions:

High Level
I'm just going totally modern. No older mobo with PCI slots. I could use a Intel 9th generation CPU, but I went with an 8th generation because the "T" suffix is needed so that the chip runs cool (35 W) and I couldn't find a source for a 9th generation "T". The 8th generation i7 chip I went to is probably more powerful than the 9th gen i5. The mobo has a Z390 chip set, the latest chip set available at this time. It will run 8th or 9th generation CPUs.

I'm also going fanless and zero noise. Passive CPU cooler, lower wattage processor (denoted by

the "T" at the end of the number), all solid state drives (which are also insanely fast R/W), fanless power supply, and big case so there's lots of open space. I'm going to first try no case fans.

For video I'm going to use the intel's onboard video (HD360). I believe that drives 2 2k monitors. I went with 32 GB of RAM because I believe it helps the onboard video processor, but I don't know if this is overkill. If I want more pixels I'd need a graphics card.

Details
$175 Mobo: Asus Prime Z390-A
$205 CPU: Intel Core i5-9400 (Update)
$ 89 CPU Cooler: NoFan CR-80EH Fanless CPU Cooler
$125 Memory: Cosair Vengeance LPX 32 GB DDR4-2666 (low profile to stay below the CPU cooler)
$ 80 Main Drive: Samsung 860 Evo 500 GB SS SATA (`500 MB/s)
$170 Audio Drive: Samsung 970 Evo 1 TB M.2-2280 NVME SS (~3500 MB/s)
$ 20 DVD-RW Drive
$160 Case: Corsair 750D ATX Full Tower Case - Airflow
$250 Power Supply: Seasonic 600W Fanless Ti
$130 Operating System: Windows 10 Home 64 bit

Checkout pcpartpicker.com and click the System Builder menu pick. Very useful for putting together a system.

3/8/2020 - Changed the CPU from Intel Core i7-8700T to i5-9400 due to availability, added DVD drive. Prices update to actual prices paid.

Subject: Re: New PARIS System
Posted by RonA on Sun, 02 Feb 2020 01:02:55 GMT
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How much would something like this cost, if I were to have my local (very good) computer service shop custom build it for me?

Subject: Re: New PARIS System
Posted by RonA on Sun, 02 Feb 2020 01:34:43 GMT
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BTW,
I'm still looking at NIXSYS (I have no financial or other vested interest in this company)who will custom build a PCI slot computer to your specs, any OS. No more worries about external chassis issues.

Subject: Re: New PARIS System

Posted by Rich.Kelley on Sun, 02 Feb 2020 19:12:19 GMT
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Hi RonA,

I added prices to my shopping list. Overall there's about $1500 in parts. You can get everything on Amazon except the CPU, which I found other places.

On the CPU, I'd recommend getting the one with the part number ending in "T". That denotes low power, about 35W. That low power is an enabler for the NoFan CPU to successful. NoFan says that it works up to 80W I think, but I read some stuff online where a user said they needed a case fan to keep the temperature reasonable under load. My thinking is why risk it. PARIS shouldn't be asking much of the CPU.

The CPU cooler means low profile RAM might be needed. The higher profile RAM has some extra heat sinking I believe. Again, my thought is why hassle with a potential interference. I'm not going to overclock this system so I don't need the extra heat sinking.

Also checkout pcpartpicker.com and click the System Builder menu pick. Very useful for putting together a system.

Subject: Re: New PARIS System
Posted by Rich.Kelley on Mon, 03 Feb 2020 04:48:25 GMT
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CPU Update
I'm starting to buy the parts and found the CPU difficult to find. The pricing I got was from a vendor that had super low ratings. I had not checked that previously.

Overall the "T" series processors, which have a 35W total dissipated power (TDP), are the best match to make the whole passive cooling thing work well. The non-suffixed processors (like i7-8700) have a TDP of 65W can also work with the passive CPU cooling. Both are on back order right now. The over-clocker series, with a K suffix, are easiest to get but have a TDP of 95W. These will NOT work with a passive CPU cooler.

I changed the processor to an 8th gen i7-8700T. Still it's back ordered until Feb 26, 2020. 2/26 Update - STILL back ordered. Apparently there's a worldwide Intel chip shortage . More updates as I get them. Stay tuned.

Subject: Re: New PARIS System
Posted by Rich.Kelley on Sun, 08 Mar 2020 18:31:51 GMT
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New System is Up and Running!!

Sorry for the long delay. I got tired of waiting for my preferred CPU, so I finally just searched the

web and bought the best Intel CPU I could find that was actually in stock. I got a i5 9400, 65W TDP.

Long story short, it works.

It has Windows 10 Home 64 bit loaded. PARIS 2 and 3 are loaded via Mike's installers. The Magma P13R (13 slot chassis) is connected via a PCIe host card to the PC. The Magma has three EDS cards in it right now. I'm just using a 442 to test running audio. Everything seems stable at this point.

Total Silence
There are no fans and no spinning hard disks on this computer. CPU temperature seems to hang around 35C when I check the bios, but I haven't done any stress testing. I'm thinking about getting a monitoring app to keep track.

The only sound this thing makes is at startup the DVD drive spins for a moment. Other than that, nothing. It is sooo nice.

I'll keep everyone updated as I complete this process, but so far here is an example of completely modern PC running PARIS well.

Subject: Re: New PARIS System
Posted by Rich.Kelley on Fri, 13 Mar 2020 17:28:21 GMT
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Here's the new system. Note the passive CPU cooler. The fans are not connected.

File Attachments

1) Computer Small.jpg, downloaded 6018 times

Subject: Re: New PARIS System
Posted by Rich.Kelley on Thu, 19 Mar 2020 21:26:24 GMT
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Hi Everyone,

Just capping off this thread. The summary is that I now have a 5 card system running on a intel i5 9th gen rig, Z390 chip set. About as modern as you can get as of March 2020. The computer is totally silent. Everything is working and has been stable during testing. I've had a couple of PARIS crashes after multiple launches and closures of PARIS without restarting, but other than that it's been stable.

I'm buying two new 32" monitors to go with the new rig. I might try 3 monitors with a video card. I'll start another thread for that if warranted.

Testing
I spent some time testing EDS cards in the new system. I tested every card as a single card systems in various slots in the Magma, and all cards were tested in a two card set-up, though not all combinations. I tested two configurations of a three card setup, and one configuration of a 4 and 5 card setup.

All test were done with PARIS 3.0 and an interface 442.

All the cards completely worked, as did every position tested in the Magma (YEA!!). The specific card nor the position in the Magma made any difference, other than the 442 needed to be

connected to the card nearest the power supply.

PARIS Launch Glich
When I start up the computer, I have to restart it before I can launch PARIS. If I launch right after I startup the computer PARIS will just hang at the splash screen. The only exception is if I moved an EDS card to a different slot in the Magma. Then PARIS would launch immediately after computer startup - no restart required - on the first startup. Once the computer was shutdown however, then every subsequent startup needed a restart before PARIS would launch. Pulling the card and putting back into the same slot did NOT change anything - a restart was still required to launch PARIS.

During the testing I repeated this more than the 30 times with no change in the results.

I'm chatting with Mike Audet about this offline, but he didn't have any ideas. Not a big deal since the computer boots in <10 sec.

Interesting Results - PARIS Launch Time
- PARIS takes longer to launch with more cards. In my setup:
- 1 card - 6 seconds
- 2 card - 10 seconds
- 3 card - 14 seconds
- 4 card - 18 seconds
- 5 card - 23 seconds

Interesting Results - Project Load Time
I got very different results with two projects. Using the demo project, "See it My Way", which is 16 tracks all on one submix, the load time was pretty consistent regardless of the number of EDS cards. The song loaded in 7 seconds on a 1 or 2 card system, up to 9 seconds on a 5 card system.

One of my projects, which very messy and has fragments of parts strewn across 7 submixes, of which only 4 are active, had really different results. On the 1 cards system it loaded instantly. 2 cards took 15 seconds. 3 cards to 50 seconds, and 4 and 5 cards took 62 seconds.

Magma Fans, Heat and Noise
Did you know EDS cards can pretty warm? I didn't realize until I did this testing how much heat those things generated. For thermal margin, I took the throttle cable off the Noctua fans in the Magma so that they're running at full speed. Still really can't hear them under the desk. The MEC is my big noise source now. I think I'm going to disconnect the fan. Thoughts?

Subject: Re: New PARIS System
Posted by mikeaudet on Sat, 21 Mar 2020 23:19:30 GMT
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Hi Rich,

Are you using the ASIO driver or the older one that comes with the installer for PARIS.exe?

I was thinking more about the need to restart. I bet that the EDS cards take too long to turn on for the motherboard, and they miss the startup sequence. On restart, they are already on, so it works. That's just a guess, of course.

Thanks for keeping us up to date on this!

All the best,

Mike

Subject: Re: New PARIS System
Posted by Ted Gerber on Sun, 22 Mar 2020 15:13:31 GMT
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Hey Rich - thanks for walking us through your process. Very much appreciated!

Ted

Subject: Re: New PARIS System
Posted by Rich.Kelley on Sun, 22 Mar 2020 18:09:48 GMT
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Hi Mike,

I used the installer that came your 32/64 bit driver. I did not use the ASIO driver. Should I have? Does the ASIO driver have all of the PARIS functionality plus the extra ability to talk to external hardware?

I was thinking about calling Magma/Onestop. PARIS launches after startup right after I move an EDS card in the Magma. I can't just pull the card and return it to the same slot, I have to move it to a different slot, so I'm wondering if there's some Magma setup thing happening. However after that first "normal" startup, all subsequent startups require a restart to get PARIS to launch. The PC boots fast, like 8-9 seconds from pushing the button to ready to rock.

And the Magma is always on before I start the PC. The PC won't even boot if the Magma is off.

Subject: Re: New PARIS System
Posted by Rich.Kelley on Sun, 22 Mar 2020 18:13:13 GMT
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You're welcome Ted. This community has been super helpful to me over the years. I never felt I

had much to offer in either computer science or audio engineering, but this computer build was an opportunity to give back. I hope it helps folks.

Subject: Re: New PARIS System
Posted by mikeaudet on Sun, 22 Mar 2020 19:23:55 GMT
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Hi Rich,

The 64 bit ASIO also includes improvements to both the scherzo driver and the PSCL. I worked really hard on getting MEC initialization faster, as well as effects loading. Some of this came out of optimizing the PSCL for the tighter timing requirements of 32 sample buffer sizes, and some of it came out of just noticing things and fixing them as I went along. I also made some changes to make the driver more resilient if PARIS.exe were to crash. The whole thing was a pretty major re-write.

Thanks so much sharing the results of your build!

All the best,

Mike

Subject: Re: New PARIS System
Posted by Rich.Kelley on Sun, 22 Mar 2020 22:30:32 GMT
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Hi Mike,

I'm confused.

I have PARIS 2.1 and 3.0 loaded from your 32/64 bit installer. Should I just install the ASIO driver along with them? And then what happens? Does the ASIO driver replace older versions of the scherzo driver with a newer version of scherzo in the ASIO driver? Is there an ASIO driver app that's installed too? Or do I need to un-install PARIS 2.1 and 3.0 before I install the ASIO driver program?

What's the PSCL?

So we're establishing I'm a dope about all of this, but that's OK if it can help someone else.

Thanks.

Subject: Re: New PARIS System

Posted by mikeaudet on Sun, 22 Mar 2020 22:58:18 GMT
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You're no dope, Rich! I just forget that not everyone know every little thing about this sometimes!

The ASIO 32/64 will replace the driver that came with the PARIS 32/64 installer with a new one that is capable of being accessed from a 64 bit process. The 32/64 driver ran a 64 bit kernel mode driver (scherzo.sys) with a 32 bit only user mode portion called the "ParisStudioControlLibrary.dll" or PSCL for short.

The ASIO driver also updates the PARISASIO.dll file (and adds a 64 bit one), and also updates the microcode that runs on the EDS cards (but only when the ASIO driver is being used, not for PARIS.exe).

The scherzo.sys, kernel portion of the driver was based upon significant assumptions that a memory address was 32 bits wide. This was fine when it was only accessed from 32 bit processes, but I had to redesign the programming interface in order to make it work from 64 bit processes, where the memory addresses are 64 bits wide. Since I was re-writing parts of it anyway, I fixed things as I went.

Changing the kernel mode programming interface meant that big sections of the 32 bit user mode part of the driver needed to be updated, too. So, the PSCL got a careful going over. When I was doing that, I removed a bunch of stuff that had been put in place to allow access from multiple processes under Mac OS 9. This stuff massively complicated the driver and served no purpose under Windows, so I removed it all. I rewrote the voice engine code (which was a big deal), and I replaced all the locks that make sure the code can run safely on multiple CPUs with faster locks so that the ASIO wouldn't see a glitch during certain operations. It went on and on. I kept finding things to make better, and I kept not being able to resist.

The end result is that new driver is better able to handle if the host crashes while DMA is in progress, effects load a lot faster, and MEC/442 initialization is a lot faster. It runs the way it did under Windows 98, maybe better.

I hope this helps!

Subject: Re: New PARIS System
Posted by Rich.Kelley on Sun, 22 Mar 2020 23:45:11 GMT
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So just load the ASIO driver with PARIS 2.1 and 3.0, and scherzo and the various other files will be updated, right?

If you did this from scratch (which I basically am) and you wanted to run PARIS.exe, you'd first run the PARIS installer, then then the ASIO installer after, correct?

Subject: Re: New PARIS System
Posted by mikeaudet on Mon, 23 Mar 2020 00:16:55 GMT
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That's exactly right. You could even de-select the driver part in the PARIS 32/64 installer and then run the ASIO 64 installer.

All the best,

Mike

Subject: Re: New PARIS System
Posted by SummingStrange on Mon, 23 Mar 2020 18:29:18 GMT
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This build sounds fantastic!
Great to hear that you got it running straight off the bat.

Only thing I'd add about cooling in the PC Case is for the PCH which is the platform controller hub and in your build the z390. This is the chip that controls all the data flows through the disk drives, PCIe bus USB etc and it could get hot. Definitely try to get a temperature monitoring application on the machine and have it running for the first few days to see where the heat is. Bios monitor is not useful as there's not much load on the system, although I think your CPU will be fine with Paris.

Subject: Re: New PARIS System
Posted by lastlaf51 on Tue, 24 Mar 2020 02:09:56 GMT
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"However after that first "normal" startup, all subsequent startups require a restart to get PARIS to launch. The PC boots fast, like 8-9 seconds from pushing the button to ready to rock."
  Yes, my new rig was that way, before I figured out that this
machine hibernates when I tell it to shut down...both Paris
and Reaper steadfastly refuse to load then. First order of
business here everyday is a restart, which takes about 22 sec.
Both apps load very quickly then.

Subject: Re: New PARIS System
Posted by Rich.Kelley on Wed, 25 Mar 2020 05:48:39 GMT
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ASIO Driver

I installed the ASIO Driver tonight.

- Project load times improved significantly.
----- The PARIS demo project "See It My Way" now loads in 2.5 sec. It was 9 seconds.
----- My personal project that used to take 62 sec to load now loads in 12 sec.
- I didn't do a careful test, but I believe time to switch cards on a submix is greatly improved too. In some earlier tests it could take around a minute to switch cards on that messy projects. Now it's a few seconds.
- PARIS launch time for the 5 card system slightly increased from 23 to 25 seconds. No big deal.
- The restart issue is unchanged. I have to restart after a startup to get PARIS to launch. Lastlaf51 apparently experiences a similar issue.

Overall the faster project loads and the card switching is great. Frankly the restart thing is not a big deal on this system since it boots so fast.

Huge thanks again to Mike for keeping PARIS alive in 2020.

Subject: Re: New PARIS System
Posted by Rich.Kelley on Wed, 25 Mar 2020 06:02:24 GMT
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Hey SummingStrange, thanks for the tips. I'll get one of the temperature monitoring programs and check out the PCH and core temps. I haven't done anything to really stress the system, but I'm not feeling any noticeable heat coming off the top of the PC case. The case is heavily vented on the bottom, front, back and top so that natural convection can do its thing. I'd feel the warm air from natural convection if there was a lot of heat, so I know it's not cooking.

Subject: Re: New PARIS System
Posted by Rich.Kelley on Fri, 27 Mar 2020 01:07:57 GMT
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Monitor and Video Card Update

I started adding more monitors to this system.

First I got 2 2560x1440 32 inch monitors working off the Intel i5's on-board graphics driver (HD630). The driver that came in Windows 10 didn't work with two monitors, but once I loaded the HD630 driver that I pulled down from the web both monitors were recognized at their native resolution with no issue. Success #1. Yea .

Then I added a MSI GT1030 2GH LP OC video card (NVIDIA, fanless, 1xHDMI 2.0b, 1xDP 1.4). I am now running 3 2560x1440 32 inch monitors between the card and the video driver on the i5. That's over 11M pixels!! I think I could run 4 monitors this size.

I failed to read the thread where Mike Audet was talking about glitches with the NVIDIA cards before I bought the card, but the good news is that there doesn't seem to be any issue, at least when playing back the large, fairly messy project that I've been using for testing. I'm calling this

success #2. Double YEA .

UPDATE 04/05/2020
The addition of the video card has resulted in system startup time to increase.
- Original startup time was 9 sec on both initial startup and restart. It's now about 25 seconds. I had reported a lot longer time, but root cause was an improperly configured BIOS. Once I got the BIOS correctly configured, boot times went to 25 seconds.
- I disabled Fast Startup in the power options. This was causing boot problems after I added the video card as well as launch problems for PARIS. I discuss more in a thread called PARIS Launch, RESTART, in Windows 10 Issue - Solution [message #109832].

Subject: Re: New PARIS System
Posted by mikeaudet on Fri, 27 Mar 2020 01:20:33 GMT
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Thanks so much for these updates, Rich! The system sounds awesome!

The DPC latency issue with Nvidia cards may be solved under Windows 10 as long as the audio thread is registered properly. It wouldn't affect the PARIS app no matter what. PARIS uses huge buffer sizes.

I have three more weeks until the end of the semester. I'm going to see if I can fix the issue with the driver that makes the restart necessary once exams are done. I'll see what I can do.

All the best!
Mike

Subject: Re: New PARIS System
Posted by Kim W. on Wed, 01 Apr 2020 13:38:10 GMT
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Hi Rich. Please see my post in the other thread.
Yes. it is a repeatable problem that the Paris App hangs upon loading, if you are using SSD's. (And let's face it... most people are using them nowadays). I have found that if you boot your machine, and leave it to settle for a minute or so, Paris will launch perfectly every time. Perhaps there are some subsystem components that need time to configure themselves before Paris is happy.
I never had this problem with ordinary drives, because they were much slower during the Windows boot process. Weird, but predictable.
Cheers,
Kim

P.S. Given that PARIS was designed well over 20 years ago, and is still a very workable and

beautiful sounding system, we have to cut this old gal some slack. Hats off to the likes of Chuck Duffy, Brian Tankersley, Derek, and especially Mike Audet that keep this "legacy" system alive. Yes, I have Cubase. Yes, I have Samplitude, both of which have their uses, and shine. But for Instant sonic gratification of recording *live* music, I'm still comfortably at home with PARIS. Hope you all are coping with this freaking pandemic. Keep well, my friends.
Kim

Subject: Re: New PARIS System
Posted by Rich.Kelley on Wed, 01 Apr 2020 22:53:34 GMT
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Deleting this comment because most of what was here doesn't apply anymore.

Please see PARIS Launch, RESTART, in Windows 10 Issue - Solution [message #109832] for more info on the PARIS launch and RESTART issue.

Subject: Re: New PARIS System
Posted by mikeaudet on Sun, 12 Apr 2020 00:01:48 GMT
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I just came across this if anyone is interested in a new build. I haven't tried it, but it looks interesting.

https://www.biostar.com.tw/app/en/mb/introduction.php?S_ID=9 55

It's a Ryzen X470 motherboard with two classic PCI slots.

All the best,

Mike
