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Testing a psu

When it comes to ensuring your system's stability and longevity, testing your PSU is crucial. Imagine your computer suddenly shutting down during a critical project due to a failing power supply unit. Knowing how to evaluate your PSU's reliability and performance can save you from such frustrating scenarios. From voltage testing to utilizing specialized tools, there are various methods to assess your PSU's health. But why stop there? Discover the impact of a faulty PSU on your overall system and uncover the early signs of trouble that testing can help you identify. How to test a PSU (Power Supply Unit) for reliability and performance? To assess a PSU's reliability and performance, you can conduct stress tests and monitor voltage outputs under various loads. Stress tests involve pushing the PSU to its limits to see how it performs under maximum capacity. You can use specialized software to stress the PSU or manually create a high load by running demanding applications simultaneously. While conducting stress tests, keep an eye on the PSU's temperature, fan speed, and voltage stability. Monitoring voltage outputs is crucial to ensure that the PSU delivers consistent and accurate power to your components. Fluctuations or irregularities in voltage can lead to system instability or damage, emphasizing the importance of this testing process in maintaining a reliable and high-performing PSU. Why is it important to test your PSU regularly? Regular testing of your PSU is essential to ensure its reliability and performance remain optimal over time. By regularly testing your PSU, you can catch potential issues early, preventing unexpected failures that could lead to data loss or hardware damage. Additionally, testing your PSU allows you to make sure it is delivering the necessary power to your components consistently, avoiding stability issues or crashes. Here is a simple table to highlight the importance of regular PSU testing: Reasons to Test PSU Regularly Benefits Early issue detection Prevent unexpected failures Ensuring power delivery consistency Avoid stability issues What tools and methods can be used to test a PSU? Using specialized tools and methods is crucial when testing a PSU to ensure its reliability and performance. One common tool is a digital multimeter, which can measure voltage outputs to check if they're within acceptable ranges. Another useful tool is a PSU tester, specifically designed to assess power supply units by checking voltages and fan functionality. For more in-depth analysis, an oscilloscope can be used to monitor voltage waveforms for any irregularities. Additionally, a power supply load tester can simulate a variety of loads to evaluate how well the PSU can handle different levels of power demand. These tools provide valuable insights into the PSU's functionality and help ensure a stable and efficient power supply for your system. Can a faulty PSU affect overall system stability and performance? A faulty PSU can significantly impact your system's stability and performance, leading to potential hardware damage and system crashes. When a power supply unit isn't functioning correctly, it may not provide consistent power to your components, causing instability in your system. This instability can manifest as random shutdowns, blue screens of death, or erratic behavior in your computer. Moreover, a faulty PSU can also lead to underperformance of your hardware components, as they may not receive adequate power to operate at their full potential. In severe cases, a failing PSU can even result in permanent damage to your motherboard, graphics card, or other critical parts of your system. To prevent such issues, it's crucial to test your PSU regularly and replace it if necessary. What are the signs of a failing PSU and how can testing help prevent issues? When your power supply unit begins to fail, certain indicators emerge that can help you identify potential issues and prevent system complications. Here are four signs of a failing PSU and how testing can help mitigate problems: Random Shutdowns: Your system may unexpectedly power off, indicating a lack of consistent power supply. Strange Noises: Unusual sounds like buzzing or whining coming from the PSU can signal impending failure. Overheating: Excessive heat emanating from the PSU suggests inefficiency and potential breakdown. Inconsistent Performance: Fluctuating power output can lead to system crashes or hardware damage, emphasizing the need for testing to ensure stability. If you have a digital multimeter on hand, it's pretty straightforward to test your PSU and rule out power gremlins as the source of your computer problems. Why Use a Digital Multimeter? Standalone PSU testers are great and we always have one on hand to get quick results. They can even give you useful values like the Power Good (PG) value that shows you how quickly your PSU comes up to full power---that's something a multimeter can't do. A good multimeter is useful for some many projects around the house. But lots of people have digital multimeters on hand already and don't have a PSU tester lying around. So while it's nice to have a PSU tester for those little extra features like the PG value, you can get almost all the same data with a more hands-on approach using a multimeter. Although using a multimeter is a bit more hands-on than just plugging in a PSU tester, it's perfectly safe if you follow some basic guidelines. At no point will we be opening up the PSU itself. Doing so without proper precautions, knowledge, and tools can give you a lethal shock. Before proceeding, we want to emphasize a few points. First, testing the output of your PSU using the methods outlined below is very safe. Opening up the actual PSU to access the "guts" of the unit is not and will expose you to both line-level electricity coming from the wall and to the capacitors in the PSU. Touching the wrong thing inside the body of the PSU has the potential to stop your heart. If your PSU is malfunctioning, the safest thing to do is simply replace it. Attempting to replace large capacitors, transformers, or other internal PSU components is an advanced electronics repair and hardly worth it, given how relatively inexpensive PSUs are. Familiarize Yourself with the ATX Pinouts Before we proceed, let's take a peek at the 20/24-pin connector to familiarize ourselves with the layout and the expected voltages. We used a handy pinout planner created by Reddit user /u/JohnOldman0 to make the diagram below and recommend the tool for anyone planning a custom cable project. If you're holding the connector with the clip up, the numbering scheme starts on the bottom left, reads 1-12 on the bottom row, and then 13-24 on the top row, for a 24-pin connector. For the purpose of this article, when we use the term "top" we mean "clip up." For a 20-pin connector, it's 1-10 and 11-20, respectively, though it's worth noting that the location of the actual voltages doesn't change even if the pin number does. The standard 24-pin ATX connector simply adds an additional 4 pins onto the 20-pin connector while preserving the original layout. Power Down The PSU If your PSU has a switch, turn it off. If it is powered on automatically when connected to an outlet, unplug it. Either way, you need the power off PSU---not just turn off your computer---before proceeding to the next steps. Disconnect the Component Cables You don't have to remove your PSU from your PC if you're trying to troubleshoot the PSU in place, but you should disconnect all the power leads (not just the one you are testing) to play it safe. While it's unlikely things will go so wrong as to damage adjacent components while you test a particular cable, there's no reason to risk it when it only takes a few seconds to remove the power leads to your GPU, drives, and such. The first pins you should pay attention to are the power supply on pin and the adjacent grounds. You need to bridge the power supply on pin (which is pin number 16 on the 24-pin readout, fourth from the left on the top) to the ground pin on either side, as seen in the ATX pinout diagram above. Jason Fitzpatrick You can jump the 16 pin either to the 15 or the 17 pin (both of which are ground pins). In the photo above you can see we've jumped the 15 and 16 using a short length of paper clip bent in a U-shape. The lack of insulation here isn't a big deal as the jumper only carries 24 volts and you won't be touching it during the test. You can also use scrap piece of 18AWG or 16AWG wire. There's also simple ATX 24-pin PSU jumper bridge tools. The bridge tool has little numbers stamped on it for each of the pinout locations, which is useful if you want a clear indicator which pin is which without counting. (Though be forewarned that some multimeters have probes just a smidge too short to reach through the bridge, which makes it difficult to tap the pins and check the voltage.) Turn the PSU On Once you have jumpered the power on pin to a ground pin, turn the PSU back on. You should hear and see the fan spin up on the PSU. Some PSUs feature fan that only briefly spins up during the power-up process and then is set to idle until the PSU temperature rises---so don't be alarmed if the fan spins and then stops a few seconds later. Testing the Pins with Your Digital Multimeter Testing your PSU with a digital multimeter isn't wildly different from using a PSU tester, the primary difference is that instead of a little microchip doing the calculations and giving the thumbs up or thumbs down, you get the hands-on experience of being the microchip and interpreting the data yourself. At this point, you need to turn on your multimeter and set the reading to DCV. If your multimeter is "auto-ranging," there's no need to do anything, if you need to set a range set it to 10V. Put the black multimer probe on any of the grounded pins. For a standard 24-pin ATX connector, that's pin 3, 5, 7, 15, 17, 18, 19, or 24. We'll be using pin 15 because its location directly adjacent to the power jumper means it's easy to identify. With the black probe on a grounded pin, touch it to any other pin and confirm that the readout is as expected. For example, if you ground out on pin 15 and touch pin 12, the readout should be 3.3V (or within ±5% of 3.3V). You can see in the photo above that our 15-pin to 12-pin connection is dead on with a 3.3V readout. Repeat this process for all the pins, confirming that the voltage readout is within the acceptable range. If the values aren't within range, it's time to replace the PSU. Here's that ATX power connection pinout again, for reference. And here are the pinouts for the 8-pin (4+4) ATX/PCIe, the 8-pin (6+2) ATX/PCIe, and the Molex drive connector if you'd like to test those pins too. Like with the larger 24-pin power connector, simply ground out your black multimeter probe on a known ground (any of the black pins above) and then touch the red probe to the other pins to check their voltage. You should check them for the same ±5% range. In the interest of protecting your hardware, we're not even going to suggest wiggle room parameters here. If one or more of the readouts are outside the ±5% range, just replace the PSU and save yourself the headaches that come from a failing power supply. Download Article A step-by-step guide to testing your PC's power supply Download Article If your desktop PC won't turn on, is stuck in a reboot loop, periodically powers down, or gives you frequent blue screen errors, you might have a failing or dead power supply (PSU). Fortunately, it's easy to check your computer's power supply using a power supply tester, which you can get from any store that sells computer parts. If you can't find a PSU tester, you can check to see if the power supply is completely dead by doing a quick paperclip test or by measuring the power supply's voltage using a multimeter. This wikiHow article will teach you three easy ways to check the power supply in your PC desktop computer. Turn off your computer. Open the case and remove plugs from the power supply unit. Find the green and black pin (location varies by manufacturer). Use a paperclip to connect the specified pins. Plug the PSU into power and look at the fan to see if it spins. 1 Shut down and unplug your computer. If you haven't already done so, you will need to turn off your computer and completely remove it from power. Use the switch on your desktop PC to flip the power switch to the Off position, and remove the AC power cord.[1] 2 Open your computer case and unplug all cables from the power supply. Disconnect the power supply cables from all of the components inside the case once you've opened the case. Follow each cable from the power supply to the component to make sure that everything is completely unplugged.[2] It might be helpful to take a photo of where everything is connected before you start disconnecting wires. Advertisement 3 Make a paper clip tester. You can use a paper clip to help test your power supply and trick it into thinking it has been switched on. To do this, straighten a paperclip and then bend it into a “U” shape. This paperclip will act as the pins that are inserted into the power supply that gives it the “Power ON” signal. 4 Find the 20/24 Pin connector that normally attaches to your computer’s motherboard. It is typically the largest connector for the power supply. 5 Find the green pin and black pin (make-specific). You will insert the paperclip's ends into the green pin (there should be only one) and a neighboring black pin. This is make-specific, so check the manual or online to find out which pins you should use for your specific power supply. For example, a Corsair PSU requires you to short pins 16 & 17 while an ATX power supply requires you to use pins 15 & 16.[3] Before you do this, double-check to make sure that the power supply is completely disconnected from any power outlet, switched off, and not connected to any computer components. Failing to do so means sticking a metal paperclip into a live power supply with electricity running through it. You can shock yourself and cause physical harm as well as damage your computer. 6 Insert the ends of the paperclip into the pins. Once you have placed the paper clip into each of the pins, place the cable somewhere where it won’t be disturbed. 7 Plug the power supply back into the outlet and turn on the power switch. As long as your paper clip stays in place, the power will run through the device. 8 Check the fan. Once the power supply is receiving power, you should be able to hear and/or see a fan moving. This will let you know that the power supply is at least working. If the power supply does not turn on at all, double-check your pins (after unplugging) and try again. If it still does not turn on, it is most likely dead. Many power supplies run the fan for only a second after it powers on; that is the zero-RAM feature. Don't be alarmed that the fan isn't continuously running! The fan briefly turning on means that your power supply is at least supplying output. This test will not tell you if the power supply is functioning as it should, just that it is turning on. You will need to perform the next test to ensure that it is outputting correctly. Advertisement 1 Get a Power Supply Tester from any electronics store. Most stores that sell computer parts also sell PSU testers. You can also find them online easily at retailers like Newegg.com, MicroCenter, and TigerDirect. Unlike poking around with pins using a multimeter, a PSU tester is plug-and-play. All you'll need to do is disconnect the power supply from your computer, connect the PSU tester to the power supply and CPU, and power on your PC to check the power supply. 2 Shut down and unplug your computer. If you haven't already done so, you will need to turn off your computer and completely remove it from power. Use the switch on your desktop PC to flip the power switch to the Off position, and remove the AC power cord. 3 Open your computer case and disconnect all components from the power supply. Follow the cables leading from the power supply to other components, like the motherboard, and disconnect them. Leave the cables connected to the power supply, but disconnected from the other components.[4] It might be helpful to take a photo of where everything is connected before disconnecting wires. 4 Connect the power supply's 24-pin power connector and 4-pin power connector to the PSU tester. Depending on your power supply, you might actually have a 6-pin or 8-pin secondary connector. If there are multiple, connect the 24-pin connector, and just one of the other connectors, to the matching locations on your PSU tester. The PSU tester should still be turned off at this point. 5 Connect the power supply to a wall outlet and turn on the switch. It's best to plug directly into the wall rather than a power strip or surge protector. 6 Turn on the PSU tester. Once the tester is on, you should hear the internal power supply fan start to run. Some PSU testers require you to hold down a button to check the power supply. 7 Check the voltage and PG value. It's normal for the voltages recorded not to match the suggested voltages exactly, as long as they are within a 5% range. If any values are outside of the suggested range, the tester will alert you with an LED or sound, depending on the tester. Any out-of-range values indicate it's time to replace your power supply unit. The PG value should be within 100-500 MS. If the PG value is way too high, your computer will constantly reboot or shut itself down. A new power supply should fix that problem. Advertisement 1 Turn on your multimeter and set it to VDC (Volts DC). If you don't have a power supply tester, you can use a multimeter to check the voltage of your power supply. If your multimeter does not have an auto-range feature, set it to 10.00V. 2 Connect your multimeter to your power supply. Connect the negative probe on the multimeter (it's black) to any ground-wired pin (find them by searching your PSU online), and connect the positive probe (it's red) to the first power line. You should repeat this test for every line that carries a voltage, like pins (for ATX PSUs only) 1, 2, 4, 9, 10, 11, 12, 13, 14, 20, 21, 22, and 23. For Corsair power supplies, test pins 1, 2, 4, 6, 9, 14, 21, and 23. 3 Read the multimeter output. If the voltages shown are within an acceptable range (you can find a list of acceptable ranges for your specific power supply online), it's ok to use. If there are any outside the range, you probably need to replace it. Even with your current readings, you aren't done! You need to test if your PSU performs under pressure. 4 Connect everything to power again and turn your computer on. In the next steps, you'll turn on your computer and use it normally without the case on the tower. Don't forget to plug in the power to your video card (if it requires one), your hard drive, and your optical drives. You can briefly use your computer without the case on, but just be careful not to ruin the insides of your computer! If the computer won't start without the case, you must remove the appropriate jumper on the motherboard. The manual for your computer should explain how you do this. Before you turn the power on, remove the paperclip you previously set up! 5 Connect your multimeter to your power supply (again). Connect the negative probe on the multimeter (it's black) to any ground-wired pin (find them by searching your PSU online), and connect the positive probe (it's red) to the first power line. 6 Read the multimeter output. If the voltages shown are within an acceptable range (you can find a list of acceptable ranges for your specific power supply online), it's ok to use. If there are any outside the range, you probably need to replace it. Repeat this test for every pin that has a voltage. 7 Re-attach the case to your computer tower. Since testing is complete, you can put the case back on your computer tower. If you are still having computer errors, or your computer will not start, move on to other troubleshooting steps. The first place to check will be your motherboard. Advertisement Add New Question Question How can you tell if a power supply is bad? Luigi Oppido Computer & Tech Specialist Luigi Oppido is the Owner and Operator of Pleasure Point Computers in Santa Cruz, California. Luigi has over 25 years of experience in general computer repair, data recovery, virus removal, and upgrades. He is also the host of the Computer Man Show! broadcasted on KSQD covering central California for over two years. The only way to know for sure is to use a power supply tester. You can make some solid guesses based on how your computer is behaving, but there's no way to know for sure without a power supply tester. Question If I'm testing a power supply, which plug do I test? Luigi Oppido Computer & Tech Specialist Luigi Oppido is the Owner and Operator of Pleasure Point Computers in Santa Cruz, California. Luigi has over 25 years of experience in general computer repair, data recovery, virus removal, and upgrades. He is also the host of the Computer Man Show! broadcasted on KSQD covering central California for over two years. You should test all of them. So check the SATA plug, the molex plug, the A TX plug, the video power card, and whatever other plugs you have on your power supply. All of those plugs should be working if your power supply is functional. Question Can a power supply still work if one of the pathways is bad? Luigi Oppido Computer & Tech Specialist Luigi Oppido is the Owner and Operator of Pleasure Point Computers in Santa Cruz, California. Luigi has over 25 years of experience in general computer repair, data recovery, virus removal, and upgrades. He is also the host of the Computer Man Show! broadcasted on KSQD covering central California for over two years. Yes, theoretically, a power supply should still be able to function if only one of the pathways is bad. It can depend on which pathway it is, but it's certainly possible. See more answers Ask a Question Advertisement Co-authored by: Computer & Tech Specialist This article was co-authored by Luigi Oppido and by wikiHow staff writer, Darlene Antonelli, MA. Luigi Oppido is the Owner and Operator of Pleasure Point Computers in Santa Cruz, California. Luigi has over 25 years of experience in general computer repair, data recovery, virus removal, and upgrades. He is also the host of the Computer Man Show! broadcasted on KSQD covering central California for over two years. This article has been viewed 1,742,180 times. Co-authors: 17 Updated: December 11, 2024 Views: 1,742,180 Categories: Maintenance and Repair Print Send fan mail to authors Thanks to all authors for creating a page that has been read 1,742,180 times. "Had an old PSU, it still worked, was just noisy. I was going to replace the fan, then saw a video about dismantling, cleaning and oiling. Did that and didn't want to test it in my PC, in case something went wrong. Found this article, used a paperclip and PSU powered up fine, very quiet fan, and I now have a spare PSU."... more Share your story Testing your computer's power supply unit is fairly simple. You can test the PSU with a basic jumper test, multimeter, or power supply tester. This will help you rule out power delivery issues as the source of your problem. Experiencing computer problems? They could be caused by a failing (or outright fried) power supply unit. Here are some signs your PC's PSU hardware is the problem---and three ways to test the PSU to see if it's still working properly. Signs Your PSU Is Failing Before we talk about testing your computer's power supply unit (PSU), let's talk about common signs your PSU is failing. These are worth investigating and potentially replacing your PSU to avoid bigger problems like hardware failure or data loss. The power supply unit is often overlooked in the PC troubleshooting process. But if you have unstable power, you'll have numerous small and difficult-to-diagnose problems cropping up all over the place. When a PSU fails, the best-case scenario is your computer won't start, and you simply replace the bad PSU. In the worst-case scenario, it fails catastrophically and takes other hardware components with it. If there are any signs your PSU is failing, you should test it. Smoke or burning smells can indicate component failure and electrical arcing, even before a complete PSU failure. Your computer shocks you. The shielding and grounding in your computer have failed somewhere. Your computer randomly shuts down or blue screens. If you can't pinpoint it to a software problem or a new piece of hardware like a GPU, it's possible issues with your PSU are causing voltage drops and shutdowns. Boot stability is inconsistent. If your computer errors out or crashes intermittently on boot, there's a good chance your PSU is on its way out. Noise from the PSU. Whether it's fan grinding (the fan in most PSU models is not user-serviceable) or high-pitched whining or buzzing from the PSU, any noise beyond the slight hum of the fan is usually a bad sign. If you're troubleshooting a ghost-in-the-machine type problem that seems unsolvable no matter how many times you reseat hardware components, reinstall drivers (or even the whole OS), or otherwise deep dive into fixing your PC, you absolutely should test your PSU. We'd go even further and suggest that you not only test a PSU if you suspect power supply issues are behind your current PC woes, but you should also test a brand new PSU before installing it in your computer. The chances of getting a defective PSU from a reputable manufacturer are slim, but testing a PSU is so easy there's no reason not to take a moment to do so before mating that PSU with hundreds of dollars worth of hardware. There are three ways to test your PSU. One requires little more than a paperclip or a scrap of wire. The others require inexpensive tools that, while you might not have them on hand, are easy to acquire. Do not open your power supply unit at any point during the diagnostic process. The internal components of a power supply unit are not user serviceable. Handling them without proper equipment and training can give you a lethal shock. Jason Fitzpatrick The jumper test is the least detailed test. In a pinch, however, it will at least tell you if your PSU can power on (or if it's damaged in such a way that it can't even spin up and provide power to your computer). To perform a jumper test, you simply need a paper clip or a piece of wire with a gauge of 16AWG or 18AWG. You can purchase a jumper bridge tool, but it's a bit overkill for most people unless you troubleshoot power supply units all day. With your wire or paper clip jumper handy, here's how to test whether your PSU can turn on. These instructions assume that your PSU is currently inside your computer, and you're starting the troubleshooting process from there. Refer to the ATX power pinout diagram above while following the instructions. Even if your PSU uses non-standard colors for the cables (such as all black, or a rainbow gradient), the pinout pattern should still be standard with the "Power On" pin located four slots over from the front side of the connector. Unplug your computer's PSU from the wall. Open your computer's case to access the PSU. Unplug the large 24-pin connector from the motherboard. Use your jumper to bridge the green wire (pin 16) to an adjacent black wire (pin 15 or 17). Plug the PSU back in. Bridging the green "Power On" wire to any black ground wire on the motherboard connector and then plugging your PSU back in should cause the fan on your PSU to spin along with any power indicator lights (if present) to illuminate. If bridging the green wire to an adjacent black wire does not turn on your PSU, it is safe to assume that the PSU is damaged and inoperable. If the unit is brand new, you should return it. If it's within warranty, you should file a claim. Testing Your PSU With a Multimeter Jason Fitzpatrick If you have a multimeter in your toolbox, you can use it to perform a more detailed test on your power supply unit. While the jumper bridge test will only tell you if the power supply unit turns on, you can use a multimeter to test the connectivity and voltage between all the different pins. To do so, you simply need to short out the Power On pin and an adjacent ground pin with a jumper, as we did in the previous section. A good multimeter is useful for so many projects around the house. Then you can connect one of your multimeter's probes to one of the ground pins, and then to each of the other pins on the connector pinout one by one to check if the voltage is correct. Our guide to testing your PSU with a multimeter includes detailed instructions for testing, not just the 24-pin motherboard connector but also your GPU and other power connectors. Testing Your PSU With a PSU Tester Jason Fitzpatrick / How-To Geek Using a multimeter to test your PSU is great because many people have multimeters on hand (or can borrow one from a friend or neighbor). But it does involve a lot of fussing with the multimeter, poking pins, and it's hard to test small connectors like fan headers and SATA connectors. This simple all-in-one unit tests ATX power 20 and 24-pin connectors as well as PCI-e, MOLEX, and SATA power connectors, too. Fortunately, dedicated PSU testers are quite inexpensive. Further, testing your PSU with a PSU tester is unbelievably simple. You just plug in the cables you want to test, turn on the PSU, and read the LCD screen readout on the tester. If reading this article in a bid to troubleshoot possible PSU problems has you giving serious thought to your PSU for the first time, we're here to help! Here are some common questions people have about power supply units. Can You Have Too Big of a PSU? You can hurt your wallet by buying a super-size premium PSU when you don't actually need it for your particular build, but it won't hurt your computer. You can't buy too big of a PSU. Your computer will simply use as much power as it needs and leave the rest of the potential capacity of your PSU untapped. Do Oversized PSUs Waste Power? Putting a powerful high-watt PSU in your computer will only use as much power as your hardware requires. So in that regard, there won't be wasted energy by way of excessive consumption. However, there is one way that an oversized power supply unit can cost you money. Power supply units convert the alternating current (AC) supplied by the wall outlet in your home into the direct current (DC) used by your computer. The process is most efficient when the power requirements of your PC are around 50% of the rated capacity of the PSU. If your PSU's wattage rating is very close to the actual demands of your PC (such that it's running at nearly 100%) or extremely high compared to your PC's needs (such that it's running very low at 10-20% of the total capacity), there will be a decrease in efficiency. Practically speaking, however, power supply inefficiencies will only cost you a dollar or two a year, so that's hardly a reason to avoid buying a higher-rated PSU. What Do "80 Plus" Power Certifications Mean? When shopping for a power supply unit you'll quickly come across PSU power certification ratings like "80 Plus Gold" and "80 Titanium." These ratings are an industry standard that indicate how efficient a power supply unit is under an 80% power load. The most basic "80 Plus" certification indicates that the PSU is 80% efficient when placed under a 50% load. The efficiency increases with each tier up to "80 Plus Titanium," which offers 94% efficiency under a 50% load. Does PSU Quality Really Matter That Much? The poor PSU might get almost zero press time and none of the glory that flashier components like GPUs and advanced multi-core CPUs get, but the humble PSU is the bedrock of a stable PC build. You don't need to buy the most premium PSU on the market, but you want to avoid no-name white-label PSUs. Stick to established companies with solid track records like EVGA and Corsair. Your PSU shouldn't be the PC component you splurge on the most, but it shouldn't be an afterthought. Can I Reuse My PSU in a New Computer? You can absolutely reuse an older PSU in a new computer. Unlike many computer components that end up incompatible with newer builds (such as outdated RAM), PSUs are standardized, sturdy, and one of the PC components you should consider reusing. While we don't recommend reusing a twenty-year-old PSU from your old college computer in a new build, you can easily get ten years out of a high-quality PSU, so there's no reason to buy a new one every time you rebuild your gaming PC unless your new build has much higher power requirements. Can I Reuse My Old PSU's Cables? If you buy a new PSU to replace your old one, and they both have modular cables, you might be tempted just to unhook the cables from the old unit and plug them into the new one. We advise against reusing modular PSU cables because it can have catastrophic consequences. The physical power connections and their pinouts are standardized on the end of the cables (the part you plug into your motherboard or GPU), but the connections on the PSU side are not, and the "pinout" of the PSU is manufacturer dependent. This means if you plug a modular cable from one manufacturer into the PSU of another manufacturer, you have no guarantee the right voltages are going to the right pins resulting in a situation not unlike plugging in an extension cord without realizing the hot, neutral, and ground wires have been switched around. If you wish to reuse them, be sure to identify and test your modular PSU cables to ensure the device side pinouts are correct. If You Upgrade Your GPU, Do You Need a New PSU? You don't necessarily need to upgrade your PSU if you upgrade your GPU. If your new GPU has power demands that will push your computer's total power consumption beyond the load rating of your current PSU, you will need to upgrade. Before you upgrade, however, it's wise to calculate your PC's power load with the new GPU instead of assuming you need to upgrade the PSU along with the GPU. Can You Upgrade an Existing PSU? You can upgrade an existing PSU, but with a noteworthy caveat. If you built your own PC, ordered it from a custom PC builder, or it is a prebuilt computer that uses standard ATX connectors, then it should be trivial to upgrade your power supply unit. Several manufacturers, notably Dell and HP, have used non-standard power connectors over the years, making it a hassle to upgrade their prebuilt computers. If you attempt to swap out their propriety PSUs with a standard off-the-shelf PSU, you'll find that the connectors aren't compatible, the wiring pinouts don't match, or both. While it's possible to work around that with third-party adapters or even redo the wiring pinouts yourself, it's probably not worth the hassle, and it's better to replace the PSU with an identical OEM model or upgrade the entire machine. Are the PSUs in Prebuilt Computers Low Quality? The power supply units in prebuilt computers are not inherently low-quality. Some prebuilt computers are made by shops that use off-the-shelf parts, and you'll find a quality EVGA power supply in your "prebuilt" machine just as if you'd picked the part yourself and installed it. But many prebuilt computers, especially the mass-produced low and mid-level offerings you at your local big-box electronics stores, have terrible no-name PSUs produced by the lowest bidder. This is one of the many reasons we recommend using a checklist when buying a prebuilt computer to ensure you get the build quality you want. Can I Use Two PSUs in a Computer? It might seem like a strange question if the thought hadn't crossed your mind, but it makes sense. When you need more RAM or storage in a computer, you typically add more, so why not do the same with a PSU? If you need 400 more watts because of your new GPU, why not just stack another PSU on the pile? Using two PSUs with one regular desktop computer is possible, but it's not a very elegant, efficient, or safe solution. Unless you have a specific use case, we recommend upgrading your power supply unit and enjoying a simple all-on-one experience without any questionable hacks or workarounds. Is Capacitor Aging Really a Concern in PSU Longevity? When you get into the weeds of PSU comparisons and performance, you'll find articles and discussions about capacitor aging in power supply units. When buying a PSU from a reputable manufacturer with a good warranty, this isn't really something most people need to worry about. If you really want to max out the life of your PSU, however, you can look for manufacturers that use high-quality solid capacitors (instead of less expensive liquid ones) and offer 10-year warranties---an excellent indication they expect their product to last.