PSU's

Introduction

Watch the following video called How to choose a Power Supply for Begginers.

Features

- Form Factor
- Wattage
- Quality and Efficiency
- ATX 2.0 vs 3.0
- Modular

PSU’s FORM FACTOR

Power Supply Wattage Calculator

These tools usually provide a **ballpark number**, not a precise measurement. Actual power use varies based on workload, background processes, BIOS settings, and even silicon quality.

Many calculators focus on **average** or **TDP-based** numbers and may **miss peak or transient power spikes**, which can be critical for PSU selection.

You should always add a safety margin (~20–30%) when choosing a PSU.

Two main options:

- https://www.bequiet.com/en/psucalculator
- https://pc-builds.com/power-supply-calculator/

Eficciency: 80 Plus vs Cybernetics

Feature	80 PLUS	Cybenetics
Focus	Efficiency only	Efficiency + Noise + Power Quality
Load Points Tested	20%, 50%, 100%	10%–115% in detailed steps
Acoustic Testing	No	Yes (LAMBDA rating)
Power Quality Analysis	No	Yes (ripple, standby, etc.)
Data Transparency	Moderate	High (reports are detailed and public)

Why Is 80 PLUS Still More Commonly Used Than Cybenetics?

1. Legacy and Early Adoption
   - 80 PLUS has been around since 2004, so it's been the industry standard for a long time.
2. Brand Recognition and Simplicity
   - Labels like "80 PLUS Gold" or "Platinum" are simple and easy to understand, even for non-technical users.
3. Lower Cost and Easier Certification for Manufacturers
   - 80 PLUS testing is cheaper and less strict, which makes it more accessible for PSU manufacturers, especially smaller or budget-oriented brands.
   - Cybenetics requires more detailed and expensive testing with advanced lab equipment, which some companies avoid.

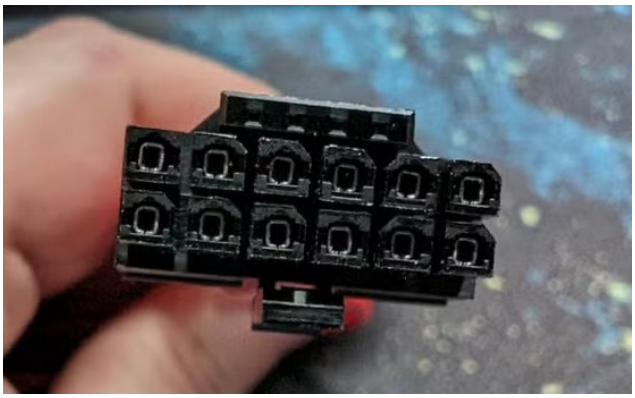
ATX 2.0 vs ATX 3.0 PSU’s

- **Power Delivery and Efficiency:**

ATX 2.0	ATX 3.0
• Older Standard: Introduced in 2003, it's based on the older 12V rails that supply the bulk of power. • The power distribution is less flexible compared to newer standards. • Efficiency levels varied widely, depending on the PSU brand and certification. Most models had 80 PLUS Bronze or Silver certification at best, and the energy efficiency during light loads could be lower than what newer standards offer	• **Newer Standard:** Launched in 2022, it aims to address the needs of modern PCs, especially with next-gen GPUs and CPUs that demand more power. • **Power Delivery:** ATX 3.0 supports a more flexible power distribution. It features an updated 12V rail system, supporting 12V+ rail(s) to handle more consistent power delivery to components, like CPUs, GPUs, and other accessories. • **Efficiency:** ATX 3.0 PSUs generally require higher efficiency, typically meeting 80 PLUS Gold or Platinum certifications, making them more energy-efficient and effective at reducing power loss.

- **Power Handling for Modern GPUs and Overloads:**

ATX 2.0	ATX 3.0
• Designed for older GPUs and CPUs, which were less power-hungry. • The PSU was not optimized for new power-hungry components, especially the latest GPUs like those requiring more than 300W, such as the RTX 4000-series. • GPU power connectors only offered **75W or 150W**.	• **Critical Improvement**: One of the main upgrades of ATX 3.0 is its ability to handle peak loads. This includes the ability to support spikes in power demand from modern GPUs and next-gen hardware. • **New Connector Standard**: **12VHPWR** connector, designed to handle the higher power demands of modern GPUs, providing up to **600W** of power to a single GPU. • **Handling Overload**: ATX 3.0 is built to manage power spikes, like when a GPU suddenly demands more power during peak gaming or rendering tasks.

Modular PSU	12VHPWR
	

PSU’s Connectors

Watch the following video about PSU Connectors

Exercises

1) Translate the following sentences to Spanish
   a) A fully **modular PSU** enhances cable management by allowing users to attach only the necessary power connectors
   b) Overvoltage, and short-circuit protections are integrated into **high-end** PSUs to safeguard sensitive components against electrical anomalies.
   c) The choice of PSU impacts not only system stability but also future **scalability** when adding more **power-hungry hardware**.
   d) A robust power supply unit is designed to handle peak or transient **power spikes** without compromising the stability of the system
   e) If you want to test whether a power supply unit turns on properly, you need to short the green and black pins on the 24-pin ATX connector.
   f) The PSU **form factor** you need will be determined by your case. You should check the **spec sheet** of the case you want to use.
   g) Before you choose a PSU, you need first to **figure out** how much power you will actually need in order to **run** your computer. You could find **power draw benchmarks** on the components in your system, mainly your GPU and CPU. It will give you a minimum wattage and you should add some **headroom** to that number around 100 to 200 watts depending on your **use case**.
   h) It’s important to avoid **low-end** PSU **manufacturers** and stick to **well-known brands**.
   i) "**On a daily basis**, I'm asked: 'Where does this connection go? What does this connection do?'"
   j) When choosing a PSU, it's helpful to have a **ballpark number** for your system's total power consumption, so you can select a unit with enough wattage and **headroom**.

Grammar Tips: Emphatic Do

Look at the sentence

“ATX 3.0 ***do*** *cost a bit more than their ATX2 counterparts at the moment* **though**"

Why do we use do in this sentence?

In English, we use "do" (or "does" / "did") before a verb to add emphasis — especially when correcting, stressing, or contrasting something.

Watch the following video about emphatic do.

Sometimes we add "do" before the main verb of the sentence.

This is called the **Emphatic do**, and it is very common **in spoken English** when we want to **add emphasis** to affirmative sentences.

"*I did follow the instructions to the letter.”*

This example suggests there was a problem and the speaker emphasises that they did everything they were supposed to do.

- With really or absolutely, the Emphatic "do" is also common.

  “I really did follow every instruction to the letter.”

- For questions or confirmation, also:

“They do understand the gravity of missing this deadline, don’t they?

Examples:

1. "The new GPU models do perform better than the older ones."

   Emphasis: Yes, the new GPUs really do outperform the old ones, even if someone might doubt it.

2. "These SSDs do boot up the system faster than HDDs."

   Emphasis: SSDs really do make a noticeable difference in boot speed.

3. "High-refresh-rate monitors do reduce motion blur during gaming."

   Emphasis: They truly help with reducing blur, and it’s not just a marketing claim.

4. "You do need at least 16GB of RAM if you want to run modern games smoothly."

   Emphasis: Running modern games smoothly really does require that amount of RAM.

Exercise 1:

1. If possible, add an emphatic "do", "does", or "did" where appropriate:
   a) Well, I ..... you many times that this would happen. The network is not secure.:
      1. did tell
      2. does tell
      3. do tell
      4. told
   b) But I ..... it in my previous email. Don’t you remember?
      1. did mention
      2. mentioned
      3. do mention
      4. does mention
   c) She ..... what she’s talking about. I’m sure she can help you.
      1. did know
      2. do know
      3. knows
      4. does know
   d) This is more serious than you realize. I ..... I should report it to the security team.
      1. does think
      2. think
      3. did think
      4. do think

2. Decide if each sentence is emphatic or not emphatic
    a) I do think she handled it really well.
    b) However, it does need reporting to the security team ASAP.
    c) She does most of the organization for each training session.
    d) You do have the experience to deal with this, don’t you?
    e) They don’t appreciate having to start these tests on Friday afternoons.
    f) He doesn’t seem to be aware of the gravity of this mistake.