Cadalyst Pro Tips #8

Six 'Whys' of Choosing a Workstation

Is it time to buy a new computer for CAD? When you plan your next purchase, start with these basics.

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Know the Difference

Why? All black boxes are not the same. To support the demands of compute-intensive applications such as CAD, skip the consumer-grade PC and invest in a purpose-built professional workstation. Equipped with the slots, space, and component access needed for easy upgrades, workstations can scale to meet bigger challenges in the future, prolonging the life of your investment. And the price difference between PCs and workstations has narrowed in recent years, so you don't need a big budget. **(Learn about budget workstations here.)**

Make It ISV-Certified

Why? Workstations that are certified by an independent software vendor (ISV) have passed extensive testing to ensure they are equipped to support a given CAD, CAE, or other software application. Choose a workstation that is ISV-certified for your most critical applications, and you can be confident it won't buckle under your workload.

Balance Your Core Needs

Whether you should favor fast central processing unit (CPU) cores or numerous CPU cores when selecting a workstation depends on your software and your work style. **Why?** If you run multithreaded applications such as rendering, finite-element analysis, and computational fluid dynamics, for example, you'll get a major benefit from multiple processing cores — which is not the case with many CAD programs. The fastest processors don't add much to the price, but they substantially improve CAD performance; speed is also crucial if you run multiple programs simultaneously. Your workstation vendor can help you find a balance that meets your needs.

Go for Pro Graphics

You don't have to get the most expensive graphics processing unit (GPU) available — it can be replaced if your demands increase in the future — but be sure it's intended for CAD work. **Why?** Professional GPUs are designed and fine-tuned to optimize your applications, whereas consumer-grade GPUs are primarily for gaming. And to ensure your workstation is always operating at its full potential, keep your GPU driver up to date.

Remember: Memory Type Matters

Why? The right kinds of memory can speed your workflow and reduce crashes and errors that hinder productivity. Solid-state drives (SSDs) are more reliable and much faster than conventional hard drives — NVMe-based SSDs can be 20 times faster — and they cost only a few hundred dollars more. For random-access memory (RAM), purchase the fastest DDR4 RAM that your processor can support. The additional designation ECC means error-correcting code: This RAM can detect and correct single-bit data-corruption errors that occur in memory, saving you headaches and downtime.

Think in ROI Terms

Why? For design and engineering companies of all sizes, downtime from slow computers and crashes isn't just frustrating — it's expensive, in terms of both wasted wages and delayed projects. If you keep return on investment (ROI) in mind, you'll buy the best-equipped professional workstation you can afford. Thanks to the impact on productivity, spending more really can save you more! **(Learn how to do this ROI calculation here.)**