Choosing the right graphics card for your workflow

In engineering, film, media, and game development

If your school's workstations are not equipped with the best-performing graphics card for your specific workflows, learning can be disrupted by slower processes. Not all graphics cards are created equal, and depending on your specific independent software vendor (ISV) use cases, some cards may provide better performance than others.

Ask yourself a few discovery questions:

- What software will my faculty and students be using?
- What does my student workflow look like?
- What are my performance benchmarks? (For example, do my workstations need to support consistent 4K resolution with high FPS rates?)
- What tools do I need to equip my students to be professional- and career-ready?

Visual effects, animation, and game design are all performance-hungry tasks that can push workstations to their limits. This is especially true if any part of your workflow includes:

- Painting and sketching
- 2D/3D modeling, texturing, and animation (including motion capture)
- Editing
- Compositing
- Color correction and grading
- Programming and compiling (specifically within gaming)
- Rendering

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The right graphics card can ensure that learning continues at the student's and educator's pace and allows the education experience to mirror the tools used by professionals.

Here are a few of our recommendations.

For students learning animation compositing, editing, and game design

We recommend higher-performance cards like the NVIDIA RTX A5000. Like other cards in this series, the A5000 is certified for most of the art creation tools used in production. It supports DirectX 11, OpenGL Legacy, and OpenGL Core Profile viewpoint 2.0 modes. NVIDIA GeForce cards, including the RTX 3080, are the natural choice for educators and students in game design.

For use in your engineering programs' workstations

We recommend NVIDIA's RTX A2000. These cards perform well when running Autodesk Revit, Autodesk AutoCAD, and SOLIDWORKS. If your program also incorporates 3D rendering tools (e.g., V-Ray, Epic Games Unreal Engine and Twinmotion, or Lumion), then equipping your workstation with the RTX A4000's 16GB of VRAM is a sensible choice with Lenovo's P300 Series.

For students, educators, and labs that require the ultimate performance for rendering and ProVR, the RTX A6000 is available with the Lenovo ThinkStation® P620.

The right graphics card needs the right workstation

Even a top-of-the-line graphics card won't give you a big performance boost without the right equipment. Workstations super-charge learning by combining flexibility and reliability with a graphics card that's ready for the challenges students will put it through.

Popular professional applications in engineering, design, and game design programs might include:

- Bentley®
- Creo®
- Siemens NX
- SOLIDWORKS™
- Autodesk® AutoCAD®
- Autodesk® Revit®
- Autodesk® Maya®
- Autodesk® 3ds Max®
- Adobe® Creative Suite®
- Epic Games Unreal Engine® and Twinmotion
- V-Ray®
- Lumion®

ThinkPad® P1 Gen 5

To take on the demands of engineering, film, and game design students, you'll need the power that comes from Intel® Core™ or Xeon® processors. Additional memory capacity also means more seamless multitasking. When it comes to laptops, the Lenovo ThinkPad® P Series Mobile Workstations, running Windows 11 and powered by Intel vPro® with up to 12th Gen Intel® Core™ i9 processors, are a top choice for schools — thanks to their reliability and workhorse capability for the most demanding applications.

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