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Choosing your hardware

Optimizing your system for Premiere Pro and After Effects

This guide is a companion document to our System Requirements pages for [Premiere Pro](#) and [After Effects](#). It provides additional information on system components and considerations for optimal performance.

Building a system for video production

The four key variables for a great video production system are:

- *Memory*
- *Graphics (GPU)*
- *Storage/Hard Drives*
- *Processor (CPU)*

Memory

Professional video workflows rely on system memory. A good video editing workstation should have at least 32GB of memory—and as much as 128GB.

Graphics

The GPU is used for on-screen rendering and export, priority areas for video production. Premiere Pro is engineered to take advantage of the GPU. After Effects is also GPU-optimized.

- Your graphics card should have at least 4GB of memory (VRAM)
- If needed, multiple GPUs, including eGPUs, will speed up rendering and export

Important note about graphics drivers

For optimal performance, make sure you have the latest drivers for your GPU, including integrated Intel GPUs.

Storage/Hard Drives

Fast storage is critical for video production. Use solid state NVMe or SSD storage. Unless you have a fast RAID array, spinning disks generally do not offer sufficient speed for HD and 4K video production.

- NVMe flash memory drives with Thunderbolt 3.0 connectivity are excellent
- SSD drives with USB 3.1 connectivity are also good - but have a 4TB limit
- An optimal setup has three drives:
 - *System Drive* for OS and applications
 - *Drive for the Media Cache*
 - *Media Drive* (or shared storage)
- If you only have two drives: use a fast external drive for your media and Media Cache.

What is the Media Cache?

The Media Cache is where Premiere Pro stores accelerator files, including peak files (.pek) and conformed audio (.cfa). Premiere Pro can make thousands of call to these files every second).

Processors

For CPUs, *clock speed* matters more for After Effects. Multiple cores have more impact for Premiere Pro. The sweet spot for running both applications is a fast CPU with 8 cores.

- Core i7 or Core i9 Intel processors or AMD equivalents are strongly recommended
- A fast clock speed means 3.2 GHz, or higher
- 8 cores are ideal for Premiere Pro. The application can use more cores, but without significant added benefit. Depending on the task, Premiere Pro runs at 93-98% efficiency with 8 cores.



Adobe Premiere Pro is a professional video editing application.

Who uses Premiere Pro?

- Editors & Filmmakers
- Broadcasters & brands
- Online content creators
- Production companies
- Corporate & event videographers
- Students & educators



Adobe After Effects is a motion graphics and visual effects application.

Who uses After Effects?

- Motion graphics designers
- Broadcasters & brands
- Editors & filmmakers
- Visual effects artists
- Designers & animators

Important note about H.264 and H.265

H.264 and H.265 (HEVC) are a widely used capture formats for DSLRs, mirrorless cameras, action cameras, and phones. H.264 is also the preferred format for uploading to YouTube and social media sites. These compressed formats are well-suited for capture and distribution, but they are processor-intensive for post-production.

If you work with H.264 and H.265, consider Intel Core i7 and Core i9 processors, which offer Quick Sync hardware acceleration, supported in both Premiere Pro and After Effects.

AMD and Intel Xeon processors work well for other formats, such as cinema camera formats, (e.g. RED, Sony Venice, ARRI) and broadcast formats (e.g. XDCam HD).

Upgrading your system

Adding memory is the easiest and usually most impactful place to start if you want to upgrade your system to improve performance for both Premiere Pro and After Effects.

Upgrade Premiere Pro system in this order of priority:

1. More RAM — up to 128GB if your motherboard supports it
2. A faster GPU (or additional GPUs) for faster rendering and export
3. Faster (or more) NVMe or SSD drives
4. Faster CPU

Upgrade your After Effects system in this order of priority:

1. More RAM — 128GB is a good target for top-of-the-line systems.
2. Faster (or more) SSD or NVMe drives
3. Faster GPU (or additional GPUs) for faster rendering and export
4. Faster CPU

Additional considerations

How can I speed up export?

A second GPU (same class GPU as the primary GPU) can provide substantial speed increases for export. [Creating Previews during your edit](#) can also accelerate export times.

How can I optimize for multicam workflows?

Assuming you have a good system, performance for multicam workflows is more dependant on your project setup than your hardware. Expert users [create their own project templates](#) to standardize their setup.

Do I need an external reference monitor?

A calibrated reference monitor connected through external transmit hardware is highly recommended for accurate display of interlaced and color critical content. Proper monitoring of HDR content requires an HDR-capable external display.

What is the best display setup for video editing?

This is a matter of personal preference. Because the Timeline is such a central element in the Premiere Pro UI, an ultra wide 37" display combined with a second reference monitor is an excellent option.

What about multichannel audio?

Simultaneous monitoring of multichannel audio requires a multichannel sound card. On Windows the sound card should be ASIO-capable.

How much does my workflow affect performance?

Our [Best Practices guide for working with native formats](#) has suggestions for designing your workflow to ensure optimal performance with your hardware.

For more information, visit the System Requirements pages for [Premiere Pro](#) and [After Effects](#).



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