Speed Up Your 4K Workflow: Real World Benchmarks

Post-Production Expert, Jeff Greenberg, shares how you can speed up your editing productivity by over 3X.

As a content creator, you work on an ever-increasing variety of post-production jobs and have to handle media files that are continually increasing in size. You're always looking for ways to boost productivity, to give yourself more time to spend on what's important – and appease your desire with a high caliber finished product.

If you rely on Adobe® Premiere® Pro as your trusted editing software, you're no doubt on the look-out for opportunities to enhance its output and rendering performance. But to "do more with less" while spending your budget wisely requires a deep understanding of the hardware demands of Premiere Pro to determine which functions will give you and your customers the best return on investment.

That's why expert Jeff Greenberg – post-production consultant, Adobe master instructor, speaker and published author – has put Premiere Pro through its paces with the very latest 2014 technology, so you don't have to. His recent bench test – an intensive 4K project with over 100 effects – put today's hardware and software head-to-head with its predecessors from 2012 to quantify the potential benefits of upgrading, so you can choose the best tools for the job with confidence.

Three key questions we set out to answer:

1. **Hardware:**
   how much would a similarly-priced workstation today improve the user experience compared to 2012 hardware?

2. **Software:**
   what is the difference in render times and output speed between Adobe Premiere Pro CS6 and Adobe Premiere Pro CC 2014?

3. **Graphics card:**
   what improvement in interactivity and reduction in render times can be achieved by the NVIDIA® Quadro K5200 over the NVIDIA Quadro 5000?

Test bed methodology

To simulate a typical user experience, Jeff took an intensive real-world project – 5 minutes of 4K (UHD 3840 x 2160) – and pushed it through a variety of tests to examine the differences in a two-generation hardware and software gap using Adobe Premiere Pro CS6 and Creative Cloud versions. The benchmark study pitted two workstations against one another – a Dell Precision T7600 from 2012 and the 2014 Dell Precision Tower 7910. Render and output were performed for each of the following variations:

- Mercury Playback Engine on/off
- Dell Precision Optimizer on/off
- Adobe Premiere Pro CS6/CC 2014

This yielded 112 separate performance measurements, to paint a detailed and accurate picture of the obstacles to creativity and project completion that can stand in an editor's way.

"A job is never finished. It is abandoned when the deadline happens."

Ancient Post-Production Proverb

Results and observations

Hardware

To level the playing field, Jeff eliminated the acceleration provided by the NVIDIA graphics card variable. The Dell hardware update improved productivity by 26.25% and output by 12.43%. What does that mean in practice? The faster the render occurs, the sooner you can get a feel for the story and make creative changes.

If you're looking to ensure your software runs at peak potential but don't have the time to manually fine-tune your system beyond its factory settings, turn on and use the Dell exclusive, factory installed Dell Precision Optimizer tool which proved an intuitive and quick way to squeeze a further 5% performance boost from the hardware.

Software

Between the two iterations of Premiere Pro, it's clear Adobe has studied the user experience and put in a lot of work to make it more efficient. In Adobe Premiere Pro CC, the user interface has had features added (such as timecode overlays), improved (font sizing in the display) or cleaned-up (hidden panel menus unified).

The addition of the Adobe SpeedGrade color correction application to Adobe Premiere Pro CC has transformed the workflow by providing an integrated, professional color grading environment – a must for editors, film-makers, colorists and visual effects artists who want their 4K material to shine.

A new feature – **Render and Replace** – provides Adobe After Effects integration by allowing the composition to be replaced with a piece of media, guaranteeing clean playback and giving the flexibility to revert to After Effects composition.

Graphics Card

If you're currently working on a system that doesn't have GPU acceleration, the difference is nothing short of astonishing – 18x faster for a blistering productivity increase of over 1,000%!

The delta between the NVIDIA Quadro K5200 in the newer workstation and the NVIDIA Quadro 5000 in the older was a substantial +19.82% in rendering productivity and +74.22% in output. In fact, rendering was actually unnecessary with the GPU activated, as the systems played back the material flawlessly.

"Everything was snappier. Editorial felt sharper and more precise. Maybe it was the removal of something as small as 100 millisecond lag, but everything flowed faster on the new system."

Jeff Greenberg

The numbers at a glance	Rendering Productivity	Output Productivity
Overall Upgrade	+36%	+321%
Upgrade to Dell Precision Tower 7910 workstation	+26%	+12%
Dell Precision Optimizer	+5%	N/A
Upgrade to Adobe Premiere Pro CC	+15%	+207%
Upgrade from CPU-only to CPU + NVIDIA GPU	N/A	+1,500%
NVIDIA K5200 Upgrade	+20%	+74%

Conclusions

Using a 4K timeline and focusing on rendering and output, the results of this benchmark test are both dramatic and conclusive. The key insights can be summed up as follows:

#1   An NVIDIA GPU accelerated system is an absolute no-brainer.

#2   Upgrading to the 2014 versions of both software and hardware yields significantly higher editorial productivity.

#3   Depending on your specific source footage and workflows, similar improvements are within your grasp, enabling you to get more work done faster, or more complex work finished.

To read the benchmark study in full, visit Dell.com/create and download your copy with our compliments.

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