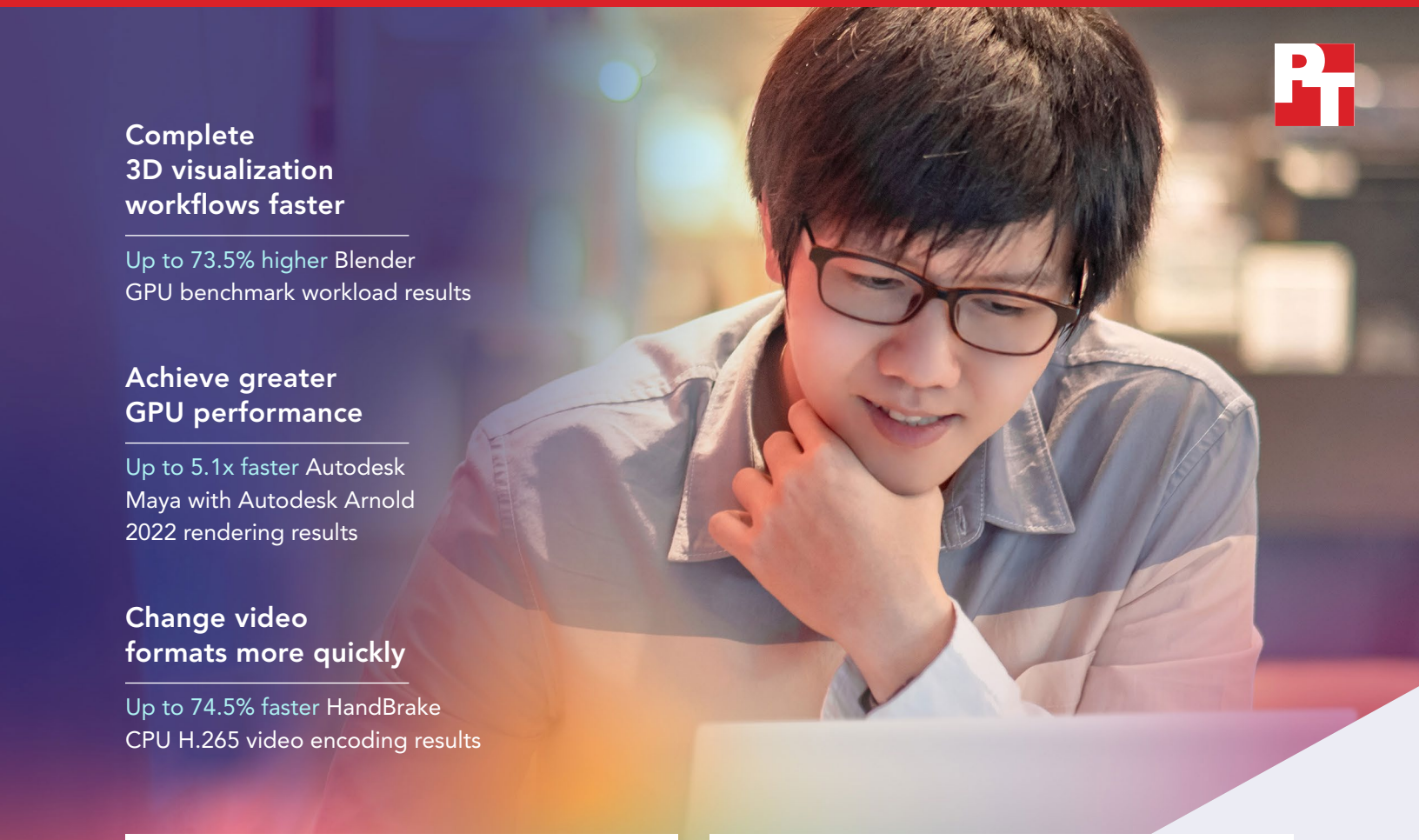


Complete 3D visualization workflows faster

Up to 73.5% higher Blender GPU benchmark workload results

Achieve greater GPU performance

Up to 5.1x faster Autodesk Maya with Autodesk Arnold 2022 rendering results

Change video formats more quickly

Up to 74.5% faster HandBrake CPU H.265 video encoding results

Dell Precision 5470: Harness more power for content creation projects

This mobile workstation outperformed a 14-inch Apple MacBook Pro in multiple creative use case comparisons

Creating effective marketing and training collateral is easier said than done. In addition to getting the right people for the job, the teams churning out this engaging content need powerful tools to bring concepts to life in a timely manner.

To help both creatives and IT decision-makers make informed buying choices, we conducted a series of hands-on performance tests on two popular (and portable) 14-inch content creation systems. We found that a Dell Precision™ 5470 workstation outperformed a 14-inch Apple® MacBook Pro® in a number of areas. Read on for all the details.

What we tested

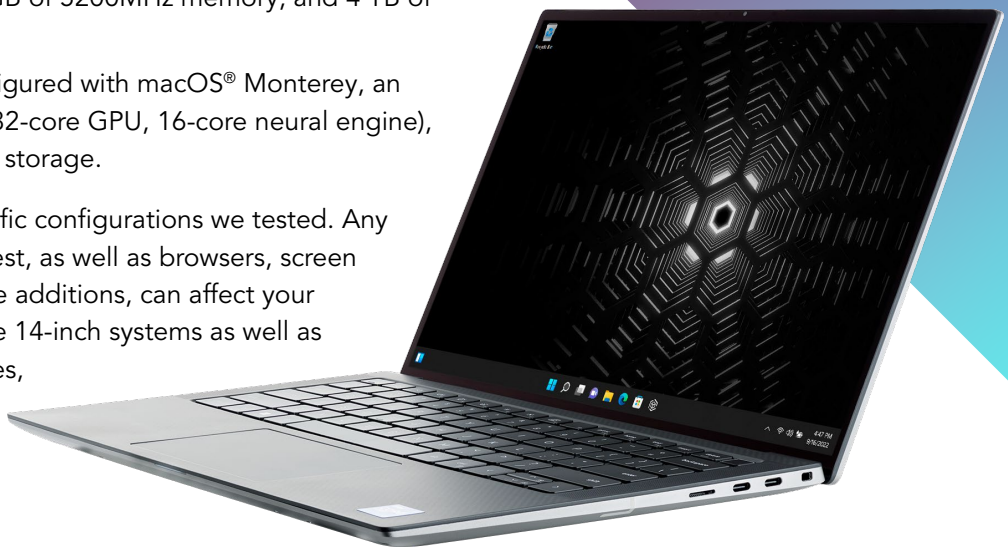
For a comprehensive look at performance across multiple use cases, we hand-timed a few Adobe Photoshop® tasks, rendered multiple 3D animation scenes using industry-standard apps, ran benchmarks that measure productivity- and content creation-based metrics, and performed iPerf3 speed tests. Before we started testing, we set the Windows power mode on the Dell Precision 5470 mobile workstation to "Best performance" and the power mode on the Apple MacBook Pro to "High Power."

- **Dell Precision 5470** configured with Windows 11 Pro, a 14-core Intel® Core™ i9-12900H processor, Intel Iris® Xe Graphics, NVIDIA® RTX® A1000 discrete graphics, 32 GB of 5200MHz memory, and 4 TB of NVMe SSD storage.
- **Apple MacBook Pro (14-inch)** configured with macOS® Monterey, an Apple M1 Max chip (10-core CPU, 32-core GPU, 16-core neural engine), 32 GB of memory, and 1 TB of SSD storage.

The results we report reflect the specific configurations we tested. Any difference in the configurations you test, as well as browsers, screen brightness, network traffic, or software additions, can affect your results. For more information on these 14-inch systems as well as our testing parameters and procedures, see the science behind the report.

About Dell Precision 5470 Workstations

Unlike many Intel Core processor-based 14-inch laptops, Precision 5470 workstations come with 45-watt Intel H-class processors more commonly found on gaming and desktop replacement laptops.[1] These mobile workstations also include NVIDIA® RTX- class graphics, Wi-Fi 6E capabilities, DDR5 memory, and PCIe® Gen4 storage.[2]



Features	Dell Precision 5470[3]	Apple MacBook Pro (14-inch)[4]
Touch screen	Yes	No
NVIDIA RTX-class graphics	Yes	No
Connectivity	Wi-Fi 6E	Wi-Fi 6
Bluetooth	5.2	5.0
Number of Thunderbolt 4 ports	4	3
SD card slot type	MicroSD	SDXC

Warranties and services

According to the Apple website, all Macs come with a one-year limited warranty and up to 90 days of complimentary tech support.[5] The Dell Precision 5470, on the other hand, comes with a 36-month warranty that includes Basic Onsite Service.[6] Both manufacturers offer accidental damage protection services for an additional fee as well as other manufacturer-based repair and service options. Here are links to both websites so you can compare for yourself:

Dell Precision 5470 warranty and services:
https://www.dell.com/en-us/shop/dell-laptops/precision-5470-workstation/spd/precision-14-5470-laptop/xctop5470usvp

AppleCare® Products:
https://www.apple.com/support/products/mac/

Time is money

Whether you're finessing company assets for your sales team or crafting what you hope is the next viral TikTok, time is your enemy. The faster and more efficiently you can get that creative project in front of its intended audience, the better.

Bring visual concepts to life in less time

In our hands-on Adobe Photoshop® comparisons, the Dell Precision 5470 and the 14-inch MacBook Pro were generally well-matched. However, the MacBook Pro took almost 30 seconds longer to stitch pictures together into a panorama. Sure, you can check your email while it's chugging along—but is getting the results more quickly ever really a bad thing?

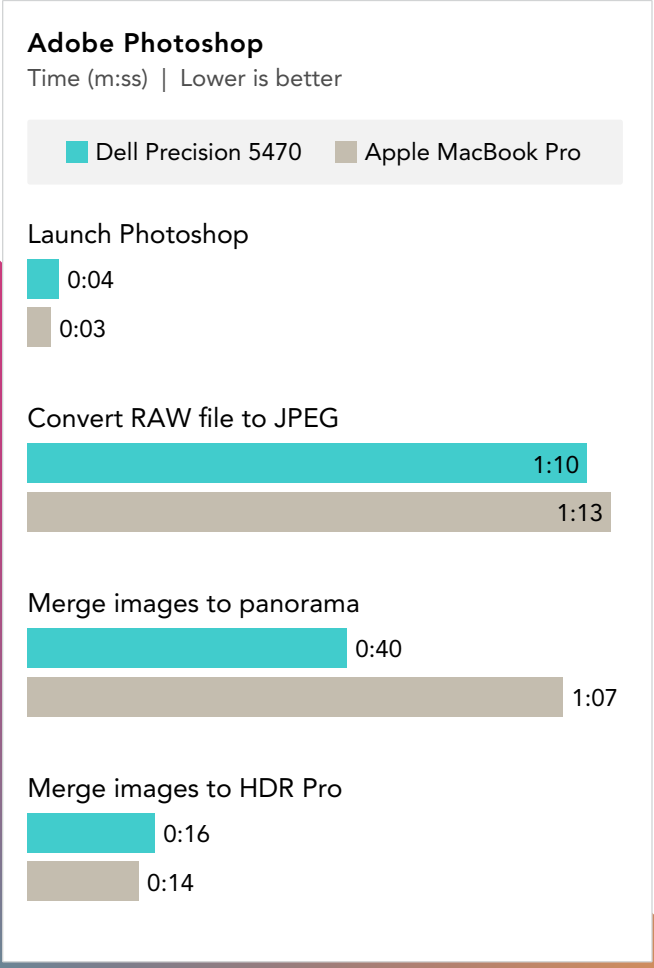


Figure 1: Adobe Photoshop hands-on test results. Source: Principled Technologies.

Create realistic 3D models and animations in less time

According to NVIDIA, more than 110 million professional and hobbyist artists are creating content on laptops and desktops.[7] In our rendering comparison using the Autodesk® Arnold benchmark, the Dell Precision 5470 with NVIDIA RTX-class graphics rendered an Autodesk Maya® 2022 scene in under 39 minutes. The same scene took almost 4 hours on the 14-inch MacBook Pro.

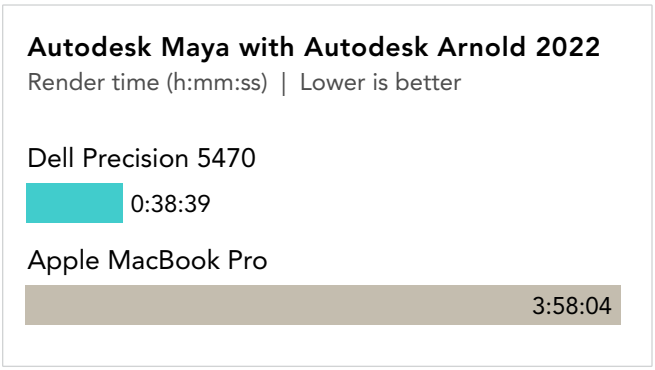


Figure 2: Autodesk Maya with Autodesk Arnold 2022 renderer performance results. Source: Principled Technologies.

▸ Note

The graphs in this report use different x axes in order to keep to a consistent size. Please be mindful of each graph's data range as you compare.

Change video formats more quickly

Video encoding, which maintains picture quality during file compression, is one of the most resource-intensive tasks you can tackle with any computer.[8] It stresses CPU, memory, and GPU—so it's an excellent way to really test what's going on behind the scenes with our two competitors. In this comparison, the Dell Precision 5470 outperformed the 14-inch MacBook Pro in both video encoding speed and the average number of frames it handled per second. This may be, in part, due to the modern GPU architecture.

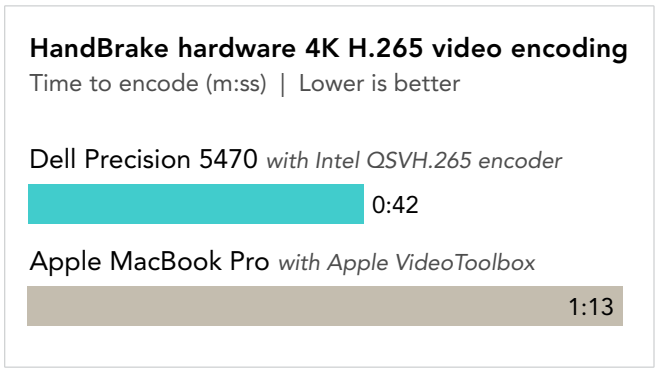


Figure 3: Average HandBrake hardware 4K H.265 video encoding times. Source: Principled Technologies.

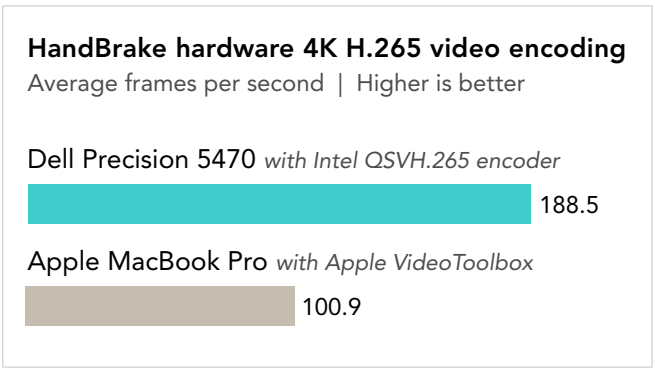
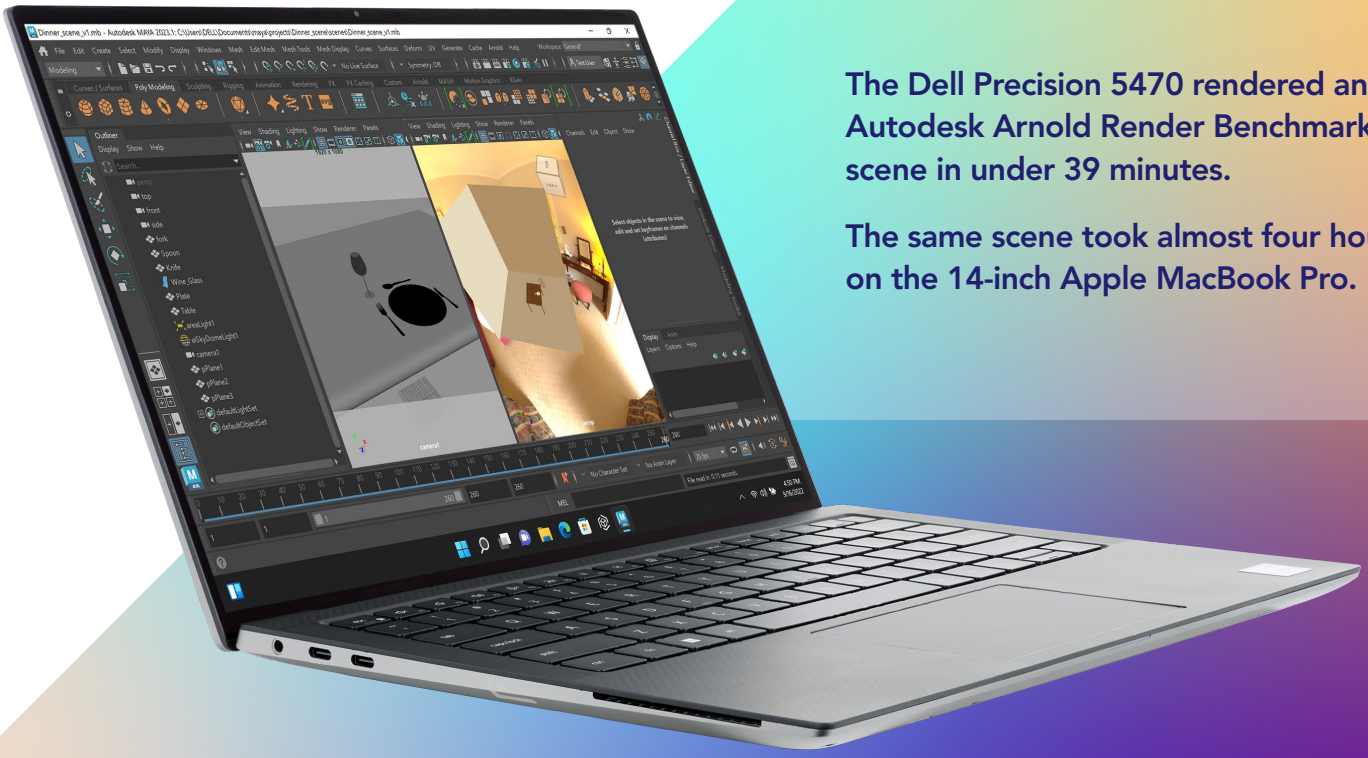


Figure 4: Average HandBrake hardware 4K H.265 video encoding frames per second (FPS). Source: Principled Technologies.



The Dell Precision 5470 rendered an Autodesk Arnold Render Benchmark scene in under 39 minutes.

The same scene took almost four hours on the 14-inch Apple MacBook Pro.

Produce designs faster with greater computational efficiency

A workstation with fast graphics processing is a boon whether you're making personalized recommendations for customers, editing videos, or rendering complex 2D and 3D graphics on embedded and mobile systems. As we show below, high-performing GPUs provide an extra performance punch to get resource-intensive projects out the door as quickly as possible.

Create interactive online apps in less time

In our hands-on Onshape comparison, the Dell Precision 5470 edged out the 14-inch MacBook Pro in both tests. Don't let the small number differences in the graph below fool you though—the Precision 5470 processed over 7 million more triangles per second and 35 million more lines per second than the 14-inch MacBook Pro.

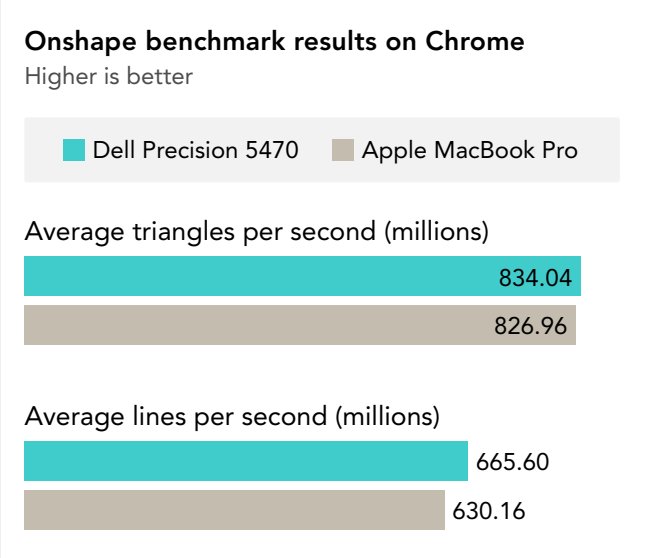


Figure 5: Average Onshape benchmark results on Chrome. Source: Principled Technologies.

Complete 3D visualization workloads faster

In our hands-on Blender GPU benchmark comparisons, the Dell Precision 5470 consistently outperformed the 14-inch MacBook Pro—with the Precision 5470 achieving a 73.5 percent higher score in the Classroom workload comparison.

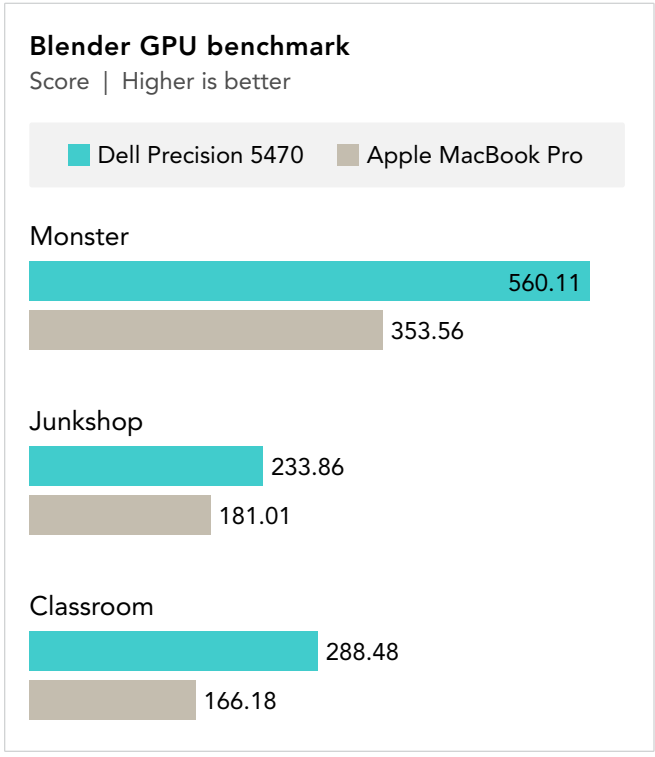


Figure 6: Blender GPU benchmark workload results. Source: Principled Technologies.

Speed collaboration

The more data a system transfers per second, the sooner you can share project updates and collaborate on project iterations. While internet connection quality is the primary determining factor for online speed, it is not the only factor. We controlled Wi-Fi 6 network connection speeds during our iPerf3 tests—so we can attribute the following megabits per second (Mbps) differences to the systems themselves.

Upload data in less time

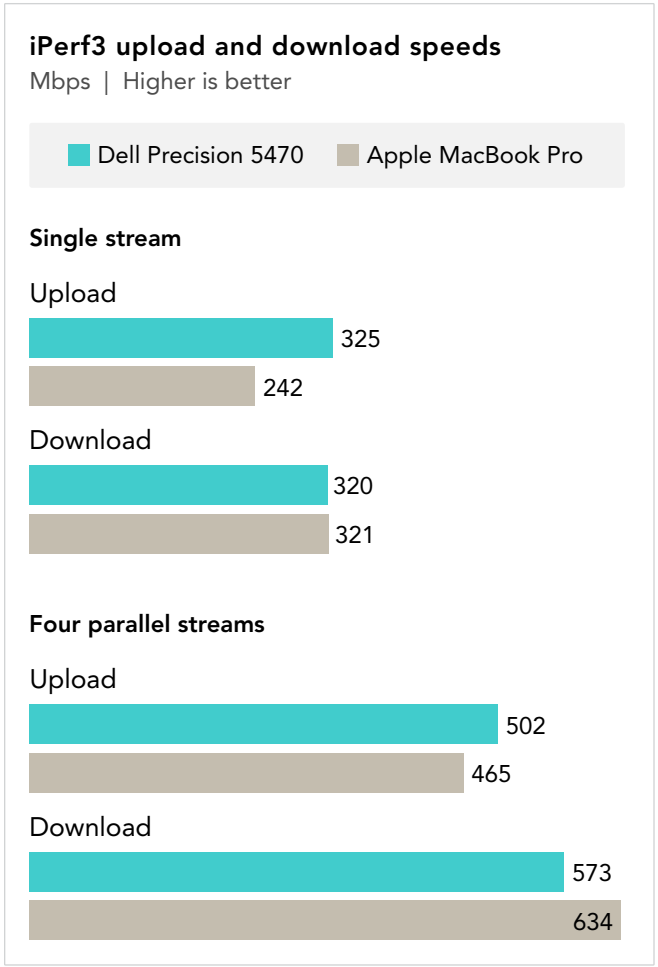


Figure 7: iPerf3 upload and download speeds in single- and four-parallel-stream scenarios. Source: Principled Technologies.

The Dell Precision 5470 consistently outperformed the MacBook Pro in Blender GPU benchmark comparisons.

Make the day flow smoothly

As much as "the work is what matters" in all creative endeavors, creatives are juggling many balls at once during the course of a day. Whether that's brainstorming on a video-conferencing call, using productivity apps to keep track of projects and ideas, or jumping online to research something, the smoother the experience, the better. Imagine not having to stress about your coworkers giving you grief when your laptop, once again, freezes during a conference call because it isn't powerful enough to share a screen while you're chatting. Even better? The higher benchmark scores we show below could translate to time savings that can really add up. Maybe even provide some much-needed wiggle room in your schedule for that twentieth iteration.

Get faster system responsiveness

The BAPCo® CrossMark™ benchmark measures overall system performance and responsiveness.[9] In this CrossMark comparison, the Precision 5470 received a 15.9 percent higher overall score than the 14-inch MacBook Pro.

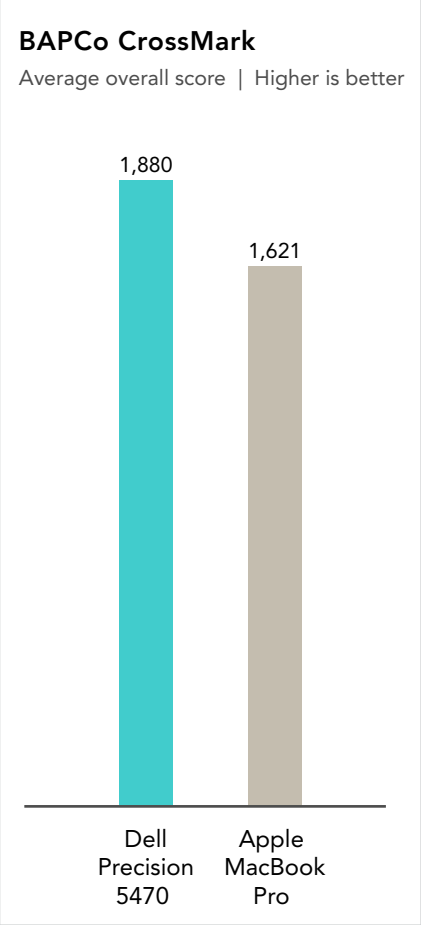


Figure 8: Average BAPCo CrossMark benchmark overall scores. Source: Principled Technologies.

Handle web-based tasks better

WebXPRT is a browser benchmark that shows how well different devices handle web-based tasks.[10] In this WebXPRT comparison, the Precision 5470 received a 13.3 percent higher overall score than the 14-inch MacBook Pro.

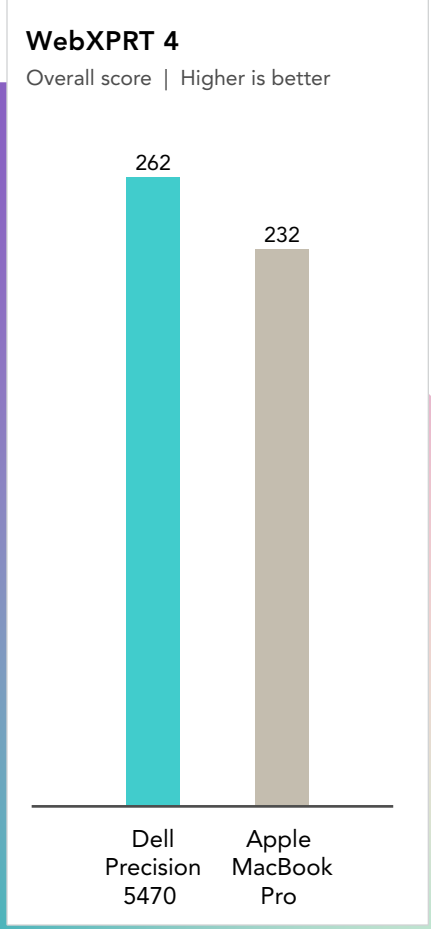


Figure 9: WebXPRT 4 benchmark overall scores. Source: Principled Technologies.

Handle demanding tasks better

Maxon Cinebench runs Cinema 4D software for system performance results.[11] In our Cinebench R23 CPU benchmark tests, the Precision 5470 received higher single- and multi-core scores than the 14-inch MacBook Pro.

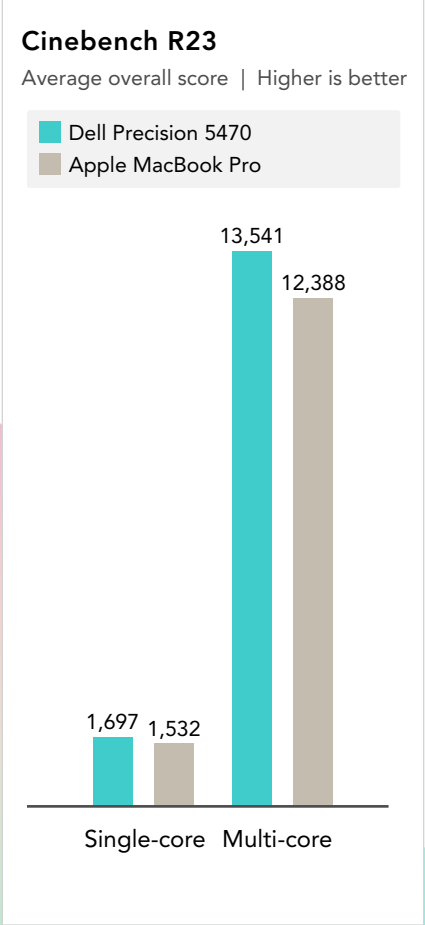
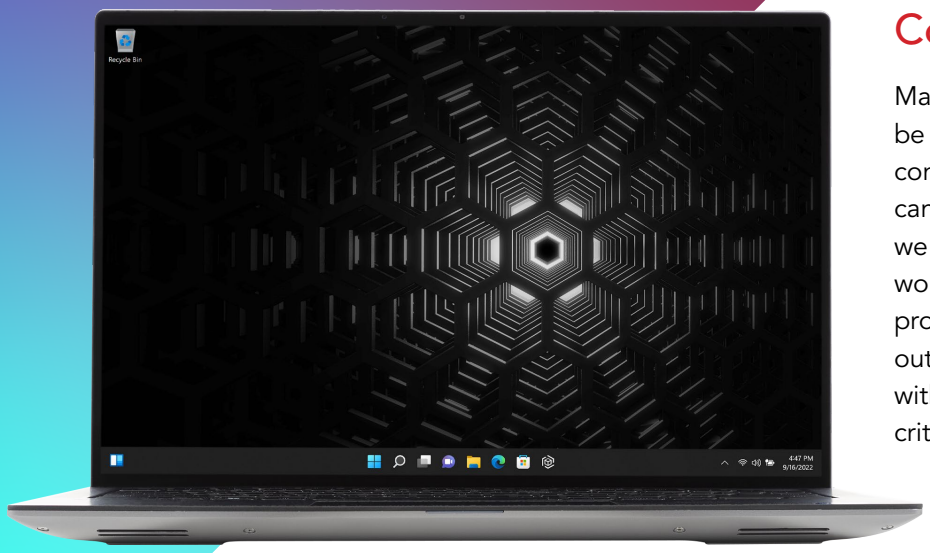


Figure 10: Average Cinebench R23 benchmark scores. Source: Principled Technologies.



Conclusion

Making informed purchasing decisions can be difficult without taking the systems you're considering out for a test drive. That's where we can help. In our hands-on performance testing, we found that a Dell Precision 5470 mobile workstation powered by an Intel Core H-class processor and NVIDIA RTX-class graphics outperformed a 14-inch Apple MacBook Pro with an Apple M1 Max chip in a number of areas critical to fast and effective content creation.

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Read the science behind this report at https://facts.pt/aEolgF7 ▶

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This project was commissioned by Dell.