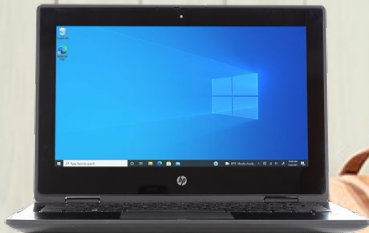




HP Pavilion x360 14t-dy000 powered by an Intel Core i5-1135G7 processor and an Intel Core i3-1125G4 processor



HP ProBook x360 11 G7 EE powered by an Intel Pentium Silver N6000 processor



Get a handle on higher-education projects with a laptop powered by an Intel Core processor

Intel Core i5-1135G7 and Core i3-1125G4 processor-powered laptops saved time on a variety of tasks

Executive Summary

At Principled Technologies, we compared the responsiveness of three Windows 10 laptops while completing tasks in a variety of common apps that college/university-level students might use for their assignments or extracurricular activities:

- Intel Pentium Silver N6000 processor-powered laptop
- Intel Core i3-1125G4 processor-powered laptop
- Intel Core i5-1135G7 processor-powered laptop

We tested these laptops using apps such as Microsoft OneDrive, Adobe Photoshop, and Google Drive. In each case, the laptops powered by Intel Core processors saved time while completing tasks. Furthermore, the Intel Core processor-powered devices achieved higher scores on benchmarking apps WebXPRT 3 and Speedometer 2.0, meaning that one would expect these devices to be more responsive during web browsing and web app activities.



Up to 77% less time

importing photos in Adobe Lightroom*^Δ



Up to 60% less time

creating a chart in Microsoft Excel*^Δ



Up to 58% less time

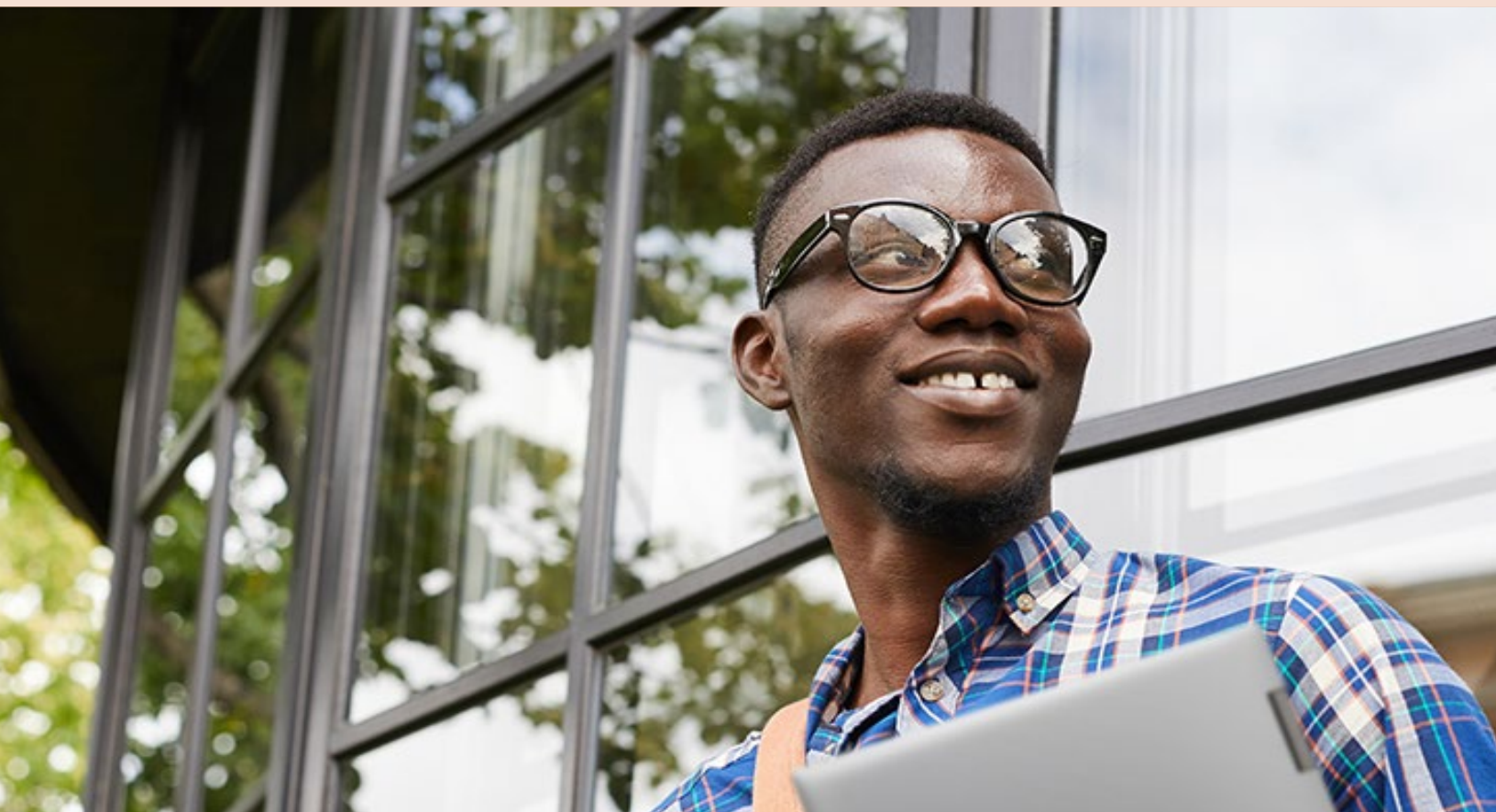
launching a Zoom meeting*^Δ

*Comparing an HP Pavilion x360 14t-dy000 with an Intel Core i5-1135G7 processor, HP Pavilion x360 14t-dy000 with an Intel Core i3-1125G4 processor, and a HP ProBook x360 11 G7 EE with an Intel Pentium Silver N6000

^ΔSee [the science behind this report](#) for detailed system configurations and benchmark results.

How we tested

To test each Windows 10 laptop, we hand-timed common tasks in a variety of apps that college and university students might use to complete educational assignments. We sorted these tasks into three scenarios to better portray how students might use these apps in the real world: a scenario that used a variety of Microsoft 365 apps, a scenario involving a Microsoft PowerPoint presentation, and a photo-editing scenario involving Adobe Photoshop and Adobe Photoshop Lightroom. For each scenario, each laptop was connected to a three-way video call via Zoom to reflect a remote learning experience.



It's a new school year, and Ellen has settled into college life without skipping a beat. She's involved herself in a wide variety of campus clubs and activities to stay occupied and stimulated during school. (Too many clubs, her grandpa tells her on a Zoom call.) Her fast, responsive Intel Core i5 processor-powered laptop is certainly enough to keep up with all of Ellen's reading assignments, her lab spreadsheets, and even her family—but can it keep up with **her**?



Save time working with a variety of Microsoft 365 apps

In this scenario, the Intel Core i5-1135G7 processor-powered device saved up to 40 seconds, while the Intel Core i3-1125G4 processor-powered device saved 35.5 seconds compared to the Intel Pentium Silver N6000 processor-powered device. Notably, when creating a clustered-column chart in Microsoft Excel, the Intel i3-1135G7 processor-powered device saved 53 percent of the time required to complete the task compared to the device with the Intel Pentium Silver N6000 processor.

Save up to 40 seconds working with presentations and charts during a Zoom call with Zoom, Microsoft OneDrive, Microsoft Excel, and Microsoft PowerPoint

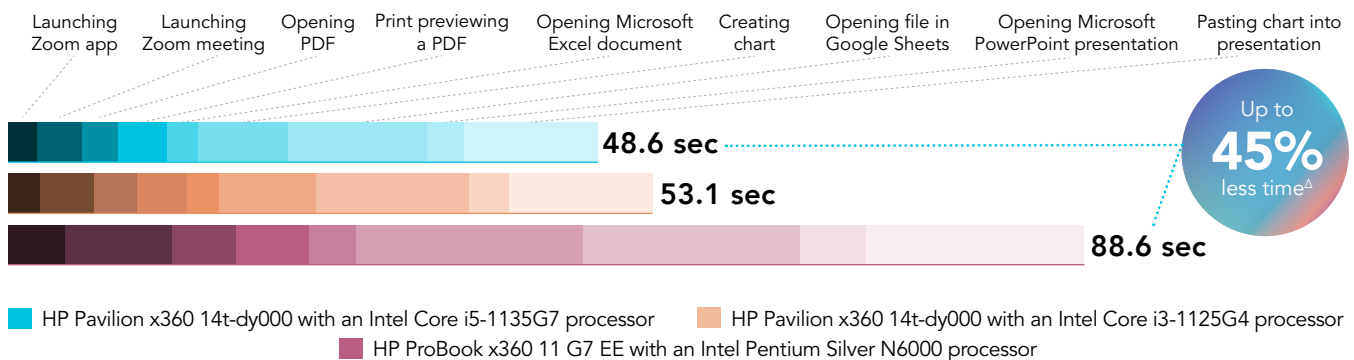


Figure 1: Time (in seconds) to complete tasks in various productivity apps. Less time is better. Source: Principled Technologies.

Zoom

Zoom is a teleconferencing and video chat app that enables users to connect, share ideas, and participate in remote events, seminars, and more. Individuals and companies around the world use Zoom as an integral part of their day-to-day operations.¹

Microsoft 365

Microsoft 365 is a cloud-based productivity suite that enables users to work in Microsoft Office apps on up to five devices concurrently. Apps include Word, Excel, PowerPoint, OneNote, Outlook, and Skype.²

^ΔSee [the science behind this report](#) for detailed system configurations and benchmark results.

Keith takes just *one* more final look at his PowerPoint presentation before he'll put it away and get dinner. Honest. Keith's not usually one to stress over assignments this much, but... Wait, is that the wrong image on slide 12?

Keith opens his research folder on OneDrive. His Intel Core i3 processor-powered laptop lets him insert the right image quickly. He sighs. OK. Just **one more** final look.



Save time working on PowerPoint presentations

For this scenario testing presentation-related tasks during a Zoom call, the Intel Core i5 processor-powered laptop saved up to 16.1 seconds total compared to the other laptops, while the Intel Core i3 processor-powered laptop saved 13.9 seconds versus the laptop with the Intel Pentium Silver N6000 processor.

Save up to 16.1 seconds working with presentations during a Zoom call with Microsoft PowerPoint and Microsoft OneDrive

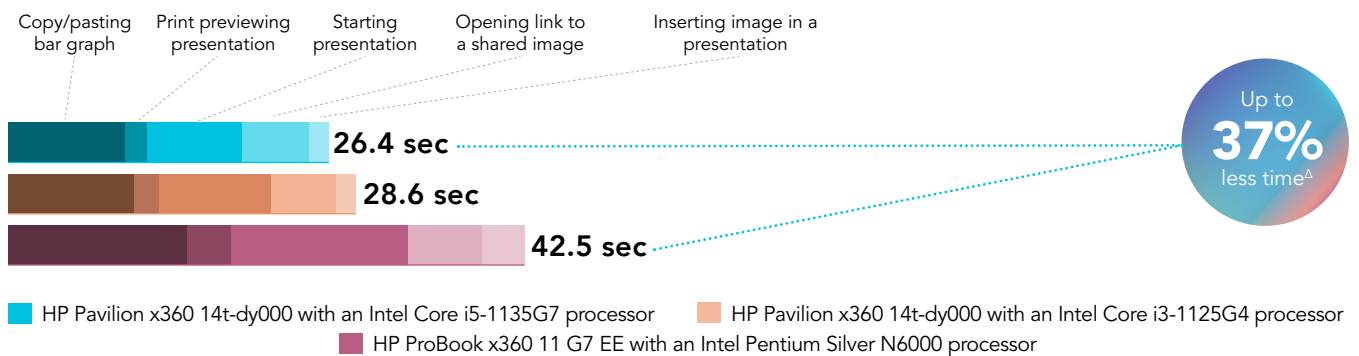


Figure 2: Time (in seconds) to complete presentation tasks with Microsoft PowerPoint and Microsoft OneDrive. Less time is better. Source: Principled Technologies.

Microsoft OneDrive

OneDrive is online storage that enables users to access and edit files across devices, back up precious data to the cloud, and share and collaborate on documents in real time via Microsoft Online apps (such as PowerPoint Online).³

^ΔSee [the science behind this report](#) for detailed system configurations and benchmark results.

In the library, Anita stares at the screen of her laptop, eagle eyed, as she quickly tabs through the dozens of photos she snapped at a campus event that afternoon. After half a minute or so, she smiles. There it is: the perfect shot. (And five more where that came from, if her editor doesn't like it!) Working as a photojournalist for her campus paper has been fulfilling in ways she never expected, and her Intel Core i3 processor-powered laptop helps ensure she's at the top of her game with photo edits.



Save time editing photos in Adobe Creative Cloud apps

In our scenario testing a few photo-editing tasks in Adobe apps during a three-way Zoom call, the Intel Core i5-1135G7 processor-powered laptop saved up to 14.3 minutes overall. The Intel Core i3-1125G4 processor-powered laptop saved 13.4 minutes compared to the Intel Pentium Silver N6000 processor-powered laptop in the overall scenario. The Core i3 processor-powered laptop saved 73 percent of the time required to import photos into Adobe Lightroom and saved 62 percent of the time required to merge photos in Adobe Photoshop compared to the Intel Pentium Silver processor-powered laptop.

Save up to over 14 minutes working with photos during a Zoom call with Adobe Lightroom and Adobe Photoshop

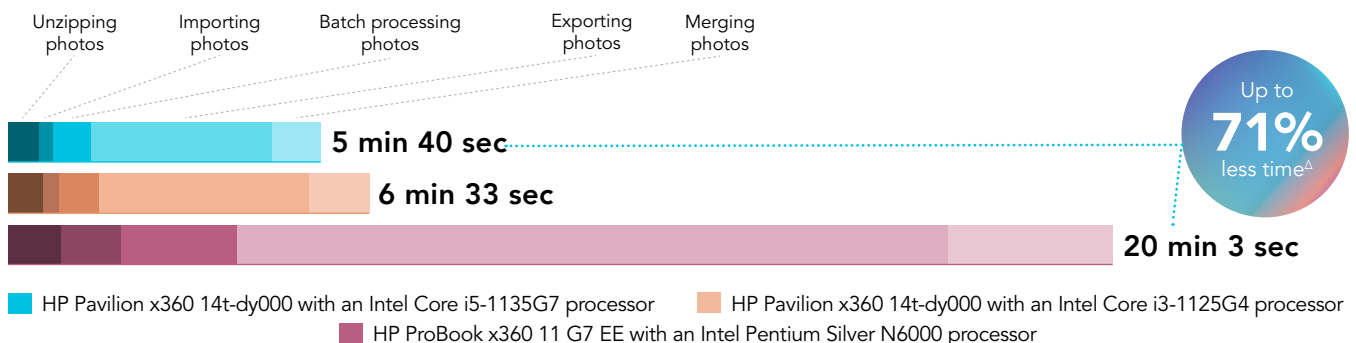


Figure 3: Time (in seconds) to complete photo-editing tasks in Adobe Photoshop and Adobe Photoshop Lightroom. Less time is better. Source: Principled Technologies.

Adobe Photoshop Lightroom

Lightroom is a cloud based photo editing app that enables users to edit, organize, and manage photos across your devices, and to share their next big photography project with collaborators.⁵

^ASee [the science behind this report](#) for detailed system configurations and benchmark results.



Stronger performance on web-based benchmark tests

To assess the web performance of each laptop, we ran two benchmark tests:

- WebXPRT 3, a browser benchmark that uses HTML5 and JavaScript-based scenarios to compare the ability of different devices to handle tasks in online apps and webpages⁶
- Speedometer 2.0, a browser benchmark that tests web app responsiveness by measuring the time required for simulated users to complete certain tasks⁷

The results of each test continued the trend we saw with our timed-task scenarios: the Intel Core i5 processor-powered laptop achieved the highest scores (up to 37.9 percent higher than the other laptops).

WebXPRT 3 score

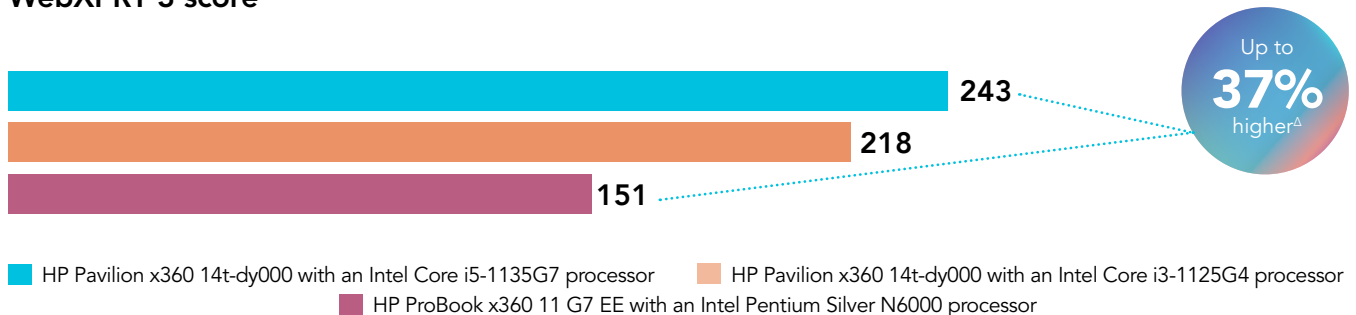


Figure 4: Comparison of WebXPRT 3 benchmark scores. Higher scores are better. Source: Principled Technologies.

Speedometer 2.0 score

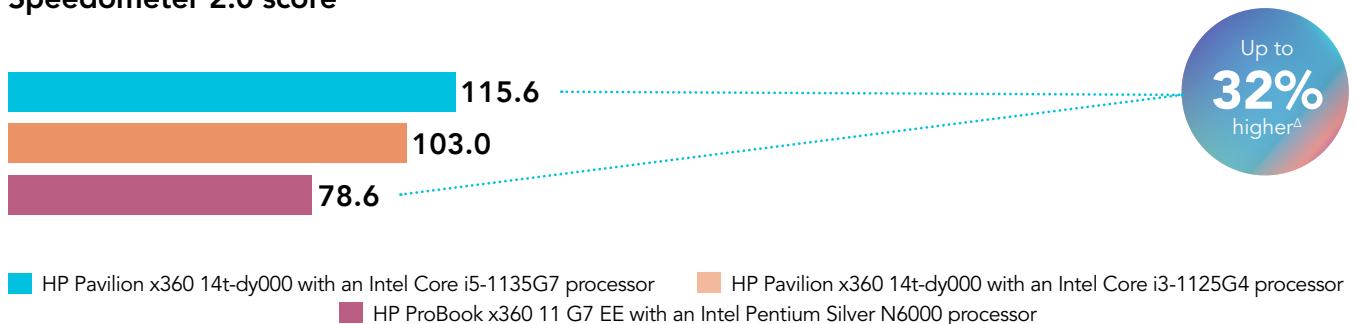


Figure 5: Comparison of Speedometer 2.0 benchmark scores. Higher scores are better. Source: Principled Technologies.

^ASee [the science behind this report](#) for detailed system configurations and benchmark results.



Conclusion

The eclectic nature of the higher-education experience means students are responsible for a wide variety of tasks throughout their college years. To help them achieve their potential, students need devices that can support their work, facilitate remote lectures, and enable them to stay in communication with friends and loved ones. In our tests comparing three Windows 10 laptops, we found that laptops powered by Intel Core i3-1125G4 and Intel Core i5-1135G7 processors saved time on tasks in common apps such as Microsoft PowerPoint, Adobe Photoshop, Zoom, and others compared to a laptop with an Intel Pentium Silver N6000 processor. Additionally, the Intel Core processor-powered laptops achieved higher scores on web-based benchmarks WebXPRT 3 and Speedometer 2.0, suggesting stronger performance with web-apps and websites in general.

- 1 "Video Conferencing, Cloud Phone, Webinars, Chat, Virtual Events | Zoom," accessed July 20, 2021, <https://zoom.us>.
- 2 "Microsoft 365 for home use," accessed July 20, 2021, <https://www.microsoft.com/en-us/microsoft-365/explore-microsoft-365-for-home>.
- 3 "OneDrive Personal Cloud Storage," accessed July 20, 2021, <https://www.microsoft.com/en-us/microsoft-365/onedrive/online-cloud-storage>.
- 4 Javier Soltero, "Google Meet premium video meetings—free for everyone," accessed July 20, 2021, <https://www.blog.google/products/meet/bringing-google-meet-to-more-people/>.
- 5 "Photo editing and organizing software | Adobe Photoshop," accessed July 20, 2021, <https://www.adobe.com/products/photoshop-lightroom.html>.
- 6 "PT - WebXPRT," accessed July 20, 2021, <https://www.principledtechnologies.com/benchmarkxprt/webxprt/>.
- 7 "About Speedometer 2.0," accessed July 20, 2021, <https://browserbench.org/Speedometer2.0/>.

Read the science behind this report at <http://facts.pt/dcn3b5> ►



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This project was commissioned by Intel.