Dell XPS 15 (9530) with NVIDIA® GeForce RTX™ 40 Series GPUs

For the heaviest workloads

New RTX 4070 graphics card
Up to **61.9%** better graphics performance*

For your demanding workloads

New RTX 4060 graphics card
Up to **47.9%** better graphics performance*

For a generational upgrade

New RTX 4050 graphics card
Up to **29.8%** better graphics performance*

Upgrade to the new Dell XPS 15 to significantly increase graphics performance

We compared this year's XPS 15 (9530) with 13th Gen Intel Core i7 processors and NVIDIA RTX 40 Series graphics cards to last year's model

We got our hands on three 2023 edition, Dell XPS 15 laptops with InfinityEdge and Eyesafe® Certified Displays and NVIDIA® GeForce RTX™ 40 Series discrete GPUs, plus one 2022 model of the popular laptop. While there were no discernible exterior differences between the 2022 and 2023 models we tested, we found the bumps to CPU and graphics performance, thanks in large part to better GPU with more memory, went beyond typical gen-to-gen improvements. Larger GPU memory permits users to "run more applications simultaneously, use more plug-ins and tools, run higher fidelity calculations and work with higher-resolution models and images."[1] Based on our results, professionals who prize top performance, immersive graphics, and extensive screen real estate should consider upgrading to the new XPS 15.

*Based on higher 3DMark Time Spy Extreme benchmark scores versus a Dell XPS 15 (9520) (2022) with previous-gen NVIDIA GeForce RTX 3050 Ti discrete graphics.

How we tested

In case you don't know who we are or why you should trust us, we're the industry's leading fact-based marketing firm. What does that mean? It means we go hands-on with technology products and translate our real-world results into information consumers can use to make better purchasing decisions.

In this graphics card performance evaluation, our tech team conducted 3DMark **Time Spy** and **Time Spy Extreme** benchmark tests that stressed the CPU and GPU capabilities of our four XPS 15 models. We picked these gaming benchmarks because they can help reveal the inner workings of non-gaming laptops. This matters to everyone because graphics cards can affect the speed of a broad variety of applications, determine how streaming video looks, and impact content creation render times.

To make sure you get apples-to-apples information on the value of upgrading to new XPS 15 (9530) models equipped with NVIDIA® GeForce RTX™ 40 Series graphics cards, we configured each test laptop as identically as possible. All four XPS 15 models we tested ran Windows 11 Pro and contained Intel Core i7 processors, 16 GB (two 8GB sticks) of DDR5-4800 memory, and 512 GB of PCIe® NVMe™ storage. Notable differences:

Baseline: This previous-gen XPS 15 (9520) contained a 12th Gen Intel® Core™ i7 processor and an NVIDIA GeForce RTX 3050 Ti discrete graphics card. This NVIDIA RTX 30 Series graphics card is a mainstream GPU. It, like all NVIDIA RTX graphics cards, was designed to "deliver realistic graphics with incredibly fast performance or cutting-edge new AI features like NVIDIA DLSS and NVIDIA Broadcast."[2]

Generational upgrade: This new XPS 15 (9530) contained a 13th Gen Intel Core i7 processor and the new NVIDIA GeForce RTX 4050 discrete graphics card. We experienced up to 29.8 percent better graphics performance on this XPS 15 (9530) compared to the 9520 baseline.

For demanding workloads: This new XPS 15 (9530) contained a 13th Gen Intel Core i7 processor and the new NVIDIA GeForce RTX 4060 discrete graphics card. We experienced up to 47.9 percent better graphics performance on this XPS 15 (9530) compared to the 9520 baseline.

For the heaviest workloads: This new XPS 15 (9530) contained a 13th Gen Intel Core i7 processor (CPU) and the new NVIDIA GeForce RTX 4070 discrete graphics card. We experienced up to 61.9 percent better graphics performance on this XPS 15 (9530) compared to the 9520 baseline.

We left the Dell thermal management and Windows power modes in their default (optimized and balanced) positions—but you can tweak them to suit your own personal needs. For more on power modes and how they impact performance and personal comfort, consult our thermal management guide on page 5.

An enhanced laptop experience with Eyesafe® technology

This report dives into the graphics performance differences you can expect with a few of the NVIDIA graphics cards on offer, but that's only part of the story.

XPS 15 (9530) laptops combine InfinityEdge and Eyesafe® Certified Displays with new NVIDIA® GeForce RTX™ 40 Series graphics cards to deliver stunning visuals on eye-friendly displays—resulting in an enhanced laptop experience.

Part of the enhanced experience is that XPS 15 InfinityEdge displays with integrated Eyesafe® Certified Blue Light Protection emit lower levels of blue light than LED displays while maintaining their high picture quality and color accuracy.[3] According to Eyesafe®, cumulative exposure to blue light, which eyes cannot filter, may increase the chance of vision problems.[4]

Our results

While it's no shock that the 2023 versions of the XPS 15 delivered higher performance metrics than last year's model, we were pleasantly surprised by how much of a difference the new NVIDIA® RTX™ 4060 and 4070 graphics cards made. Imagine how speedily your graphics-intensive applications would respond and how much more pleasurable your experience would be with noticeably faster graphics performance!

The compelling rise in **Time Spy** overall scores in Figure 1 shows how each new XPS 15 (9530) and NVIDIA GeForce RTX 40 Series GPU step-up substantially increased graphics performance when rendering CPU- and GPU-intensive workloads at 2,560 x 1,440 (1440p) resolution.[5]

Gaming context: This benchmark is intended for gaming PCs. The Old School Gamers website claims that a laptop with 1440p resolution and the highest graphics quality settings available that receives a Time Spy score of 4,000 can run the popular online game Fortnite at 50 frames per second (FPS) on average. They also claim that a Time Spy score of 6,000 translates to an average of 70 FPS in Fortnite.[6]

Non-gaming context: 24 FPS is the standard in modern cinematography and animation.[7] In our Time Spy benchmark tests, all four of the XPS 15 laptops surpassed the 50 FPS requirement for this popular game—but only the new XPS 15 (9530) with NVIDIA® GeForce RTX™ 40 Series graphics cards received scores over 6,000 (70 FPS), which puts this year's XPS 15 into the winner's circle for maximum immersion:

- **Professionals** could work on high-resolution content on multiple displays.
- **Content creators** could expect improved photo- and video-editing performance.
- **Engineers and economists** could work on larger models and datasets.
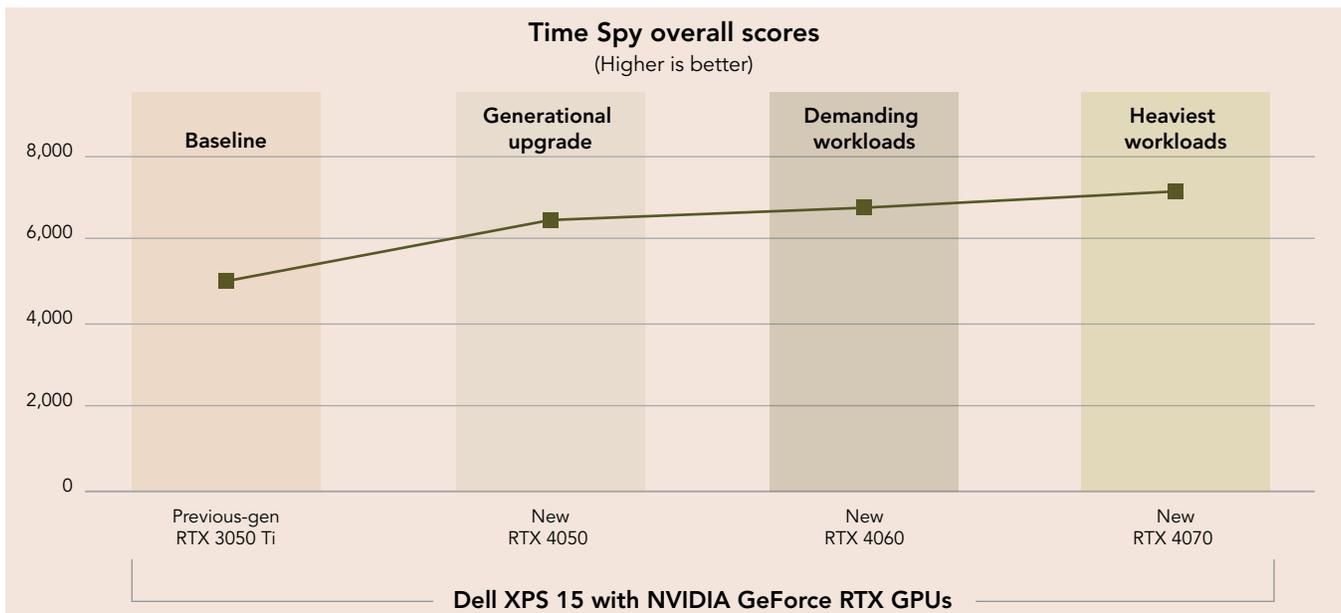- **Forecasters and analysts** could iterate more smoothly on collaboration workflows.

Figure 1: Median Time Spy overall scores. Higher is better. Source: Principled Technologies.

About Eyesafe®

As screen time rises, doctors are increasingly concerned about the long-term effects of screen exposure from digital devices.[8]

Developed by a team of eye doctors, ophthalmologists, engineers, and scientists, Eyesafe® Certified Displays intelligently minimize harmful blue light emissions to promote eye comfort during extended screen use.[9]

For more information, visit the Eyesafe® website at https://eyesafe.com/solutions/.

The large increase in **Time Spy Extreme** overall scores in Figure 2 shows how each new XPS 15 (9530) and NVIDIA® GeForce RTX™ 40 Series GPU step-ups handled the same CPU- and GPU-intensive workloads as Time Spy benchmark—only at a higher 3.840 x 2,160 resolution (4K).

Gaming context: This benchmark is intended for more powerful gaming PCs.[10] While we couldn't find any Time Spy Extreme score correlations online, this benchmark renders videos at 4K UHD resolution, a marked increase from the 1440p resolution of the Time Spy benchmark.

Non-gaming context: If you're not a gamer, all this focus on graphics card performance and gaming benchmark performance metrics may not seem very important to you—but it very much can be! NVIDIA® says GeForce RTX™ 40 Series graphics cards are ideal for creative endeavors and can tackle the most challenging engineering, economics, and data science workloads.[11]
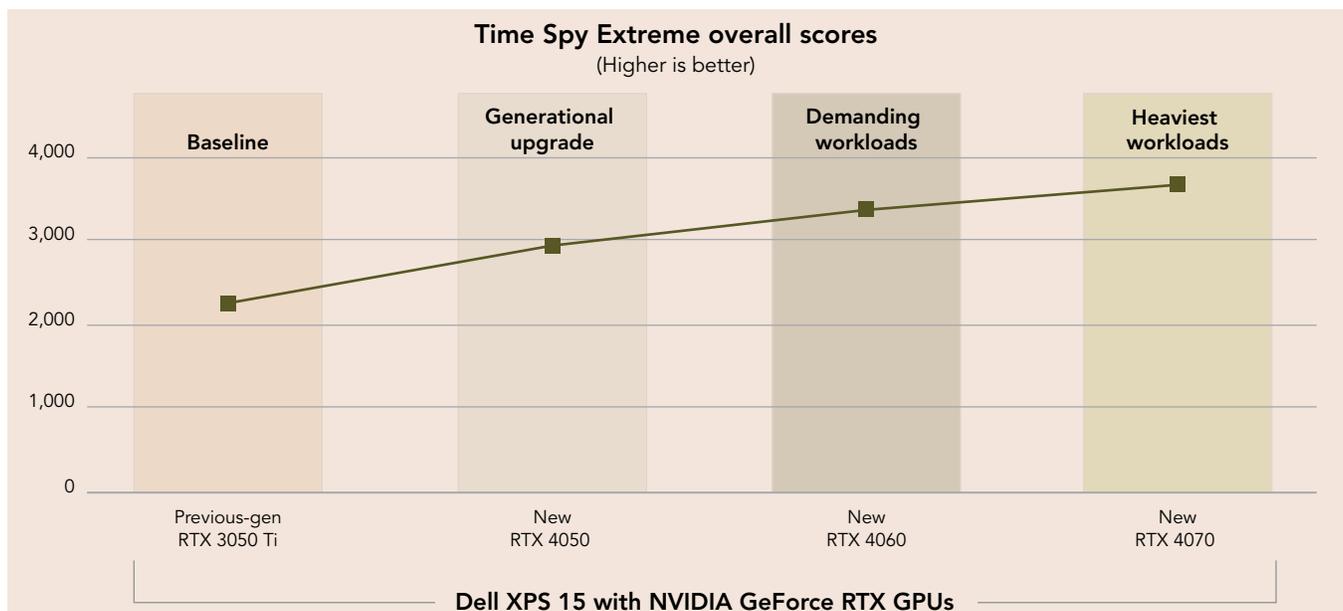

Figure 2: Median Time Spy Extreme overall scores. Higher is better. Source: Principled Technologies.

Thermal management

The Dell XPS 15 allows you to dial in the performance, noise, and temperature balance that most suits your specific needs. You can choose one of the following thermal management settings in the BIOS or in Dell Power Manager, found in the My Dell application:

Optimized mode is the standard thermal management setting. It balances performance, noise, and temperature.

Cool mode prioritizes lower surface temperatures. This setting may increase fan noise and/or decrease performance.

Quiet mode is for users who want to minimize noise. This setting may make the device noticeably warmer and/or decrease performance.

Ultra-performance mode is for anyone who wants to make the most of available processor power. We tried this with the new NVIDIA GeForce RTX 40 graphics cards in this study and found this setting, when used in conjunction with the Windows power slider set to best performance, delivered an average of 5 percent better graphics card performance. These results are in the science behind the report.

For more information on thermal management, consult the Dell Power Manager User Guide: https://www.dell.com/support/manuals/en-us/dcpm2.1/userguide_dell-v1/introduction?guid=guid-e818d92f-5e64-4af8-907a-8de626dea9cb&lang=en-us.

Conclusion

We found that the increased CPU performance and vastly greater graphics performance of the NVIDIA® GeForce RTX™ 40 Series discrete graphics cards with larger GPU memory in this year's XPS 15 (9530) went beyond typical gen-to-gen performance improvements. These graphics performance advancements are important because professional workflows are more GPU memory-intensive than ever before.[12] Based on our hands-on findings, professionals who prize top performance, immersive graphics, and edge-to-edge displays should consider upgrading to an XPS 15 (9530) equipped with the new NVIDIA RTX 40 Series graphics cards.
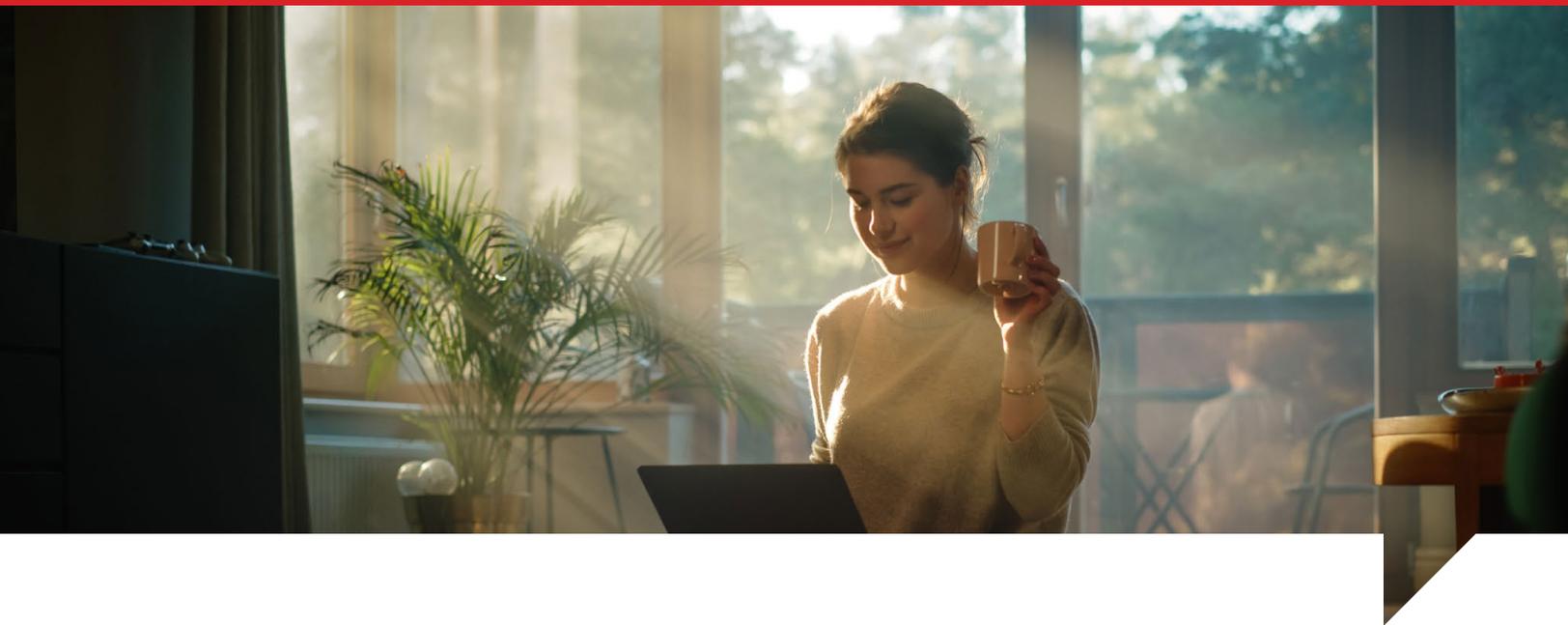
1. Engineering.com, "Why GPU Memory Matters More Than You Think," accessed July 25, 2023, https://www.engineering.com/story/why-gpu-memory-matters-more-than-you-think.

2. NVIDIA, "GeForce RTX 3050," accessed July 25, 2023, https://www.nvidia.com/en-us/geforce/graphics-cards/30-series/rtx-3050/.

3. Dell, "XPS," accessed July 26, 2023, https://www.dell.com/en-us/shop/dell-laptops/sf/xps-laptops.

4. Eyesafe, ""What is blue light?" accessed July 28, 2023, https://eyesafe.com/bluelight/.

5. UL Solutions, "Benchmarks," accessed July 25, 2023, https://support.benchmarks.ul.com/support/solutions/articles/44002146295-3dmark-user-guide.

6. Old School Gamers, What is a good 3DMark score?" accessed July 25, 2023, https://osgamers.com/frequently-asked-questions/what-is-a-good-3dmark-score.

7. GPU Mag, "What Is A Good FPS For Gaming?" accessed July 25, 2023, https://www.gpumag.com/good-fps-for-gaming/.

8. UL Solutions, "Benchmarks," accessed July 25, 2023, https://support.benchmarks.ul.com/support/solutions/articles/44002146295-3dmark-user-guide.

9. NVIDIA, "GeForce," accessed July 24, 2023, https://www.nvidia.com/en-us/geforce/laptops/.

10. Cultivating Health, "How blue light affects your eyes, sleep, and health," accessed July 26, 2023, https://health.ucdavis.edu/blog/cultivating-health/blue-light-effects-on-your-eyes-sleep-and-health/2022/08.

11. Eyesafe, "Advanced blue light technology," accessed June 30, 2023, https://eyesafe.com/solutions/.

12. Engineering.com, "Why GPU Memory Matters More Than You Think." accessed July 25, 2023, https://www.engineering.com/story/why-gpu-memory-matters-more-than-you-think.

Read the science behind this report at https://facts.pt/CymNO9D ▶

Principled Technologies®

Facts matter.®

This project was commissioned by Dell Technologies.