



The science behind the report:

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

This document describes what we tested, how we tested, and what we found. To learn how these facts translate into real-world benefits, read the report [Upgrade to the new Dell XPS 15 to significantly increase graphics performance](#).

We concluded our hands-on testing on June 24, 2023. During testing, we determined the appropriate hardware and software configurations and applied updates as they became available. The results in this report reflect configurations that we finalized on June 23, 2023 or earlier. Unavoidably, these configurations may not represent the latest versions available when this report appears.

Our results

To learn more about how we have calculated the wins in this report, go to <http://facts.pt/calculating-and-highlighting-wins>. Unless we state otherwise, we have followed the rules and principles we outline in that document.

Table 1: Results of our 3DMark benchmark testing of Dell™ XPS™ 15 9520 and 9530 laptops with NVIDIA® GeForce RTX™ graphics cards.

	Dell XPS 15 (9520) with an NVIDIA RTX 3050 Ti discrete graphics card	Dell XPS 15 (9530) with an NVIDIA RTX 4050 discrete graphics card	Dell XPS 15 (9530) with an NVIDIA RTX 4060 discrete graphics card	Dell XPS 15 (9530) with an NVIDIA RTX 4070 discrete graphics card
3DMark overall scores				
Time Spy	4,996	6,451	6,698	7,106
Time Spy Extreme	2,277	2,956	3,367	3,686
Graphics performance percentage increases from baseline				
Time Spy	Baseline	29.1%	34.1%	42.2%
Time Spy Extreme	Baseline	29.8%	47.9%	61.9%

System configuration information

Table 2: Detailed information on the systems we tested.

System	Dell XPS 15 9520	Dell XPS 15 9530	Dell XPS 15 9530	Dell XPS 15 9530
Processor				
Vendor	Intel®	Intel	Intel	Intel
Model number	Core™ i7-12700H	Core i7-13700H	Core i7-13700H	Core i7-13700H
Core frequency (GHz)	2.3 – 4.7	2.4 – 5.0	2.4 – 5.0	2.4 – 5.0
Number of cores	14	14	14	14
Number of threads	20	20	20	20
Cache (MB)	24	24	24	24
Memory				
Amount (GB)	16 (2 x 8)	16 (2 x 8)	16 (2 x 8)	16GB (2 x 8)
Type	DDR5-4800	DDR5-4800	DDR5-4800	DDR5-4800
Speed (MHz)	4800	4800	4800	4800
Graphics #1				
Vendor	Intel	Intel	Intel	Intel
Model number	Iris® Xe graphics	Iris Xe graphics	Iris Xe graphics	Iris Xe graphics
Graphics #2				
Vendor	NVIDIA®	NVIDIA	NVIDIA	NVIDIA
Model number	GeForce RTX™ 3050 Ti, 4GB GDDR6	GeForce RTX 4050, 6GB GDDR6	GeForce RTX 4060, 8GB GDDR6	GeForce RTX 4070, 8GB GDDR6
Storage				
Model	WDC SN810	KIOXIA KXG70ZNV512G	KIOXIA KXG70ZNV512G	Samsung PM9A1
Amount (GB)	512	512	512	512
Type	PCIe NVMe	PCIe NVMe	PCIe NVMe	PCIe NVMe
Connectivity/expansion				
Wireless internet	Intel Wi-Fi 6 AX211	Intel Wi-Fi 6 AX211	Intel Wi-Fi 6 AX211	Intel Wi-Fi 6 AX211
Bluetooth	5.2	5.2	5.2	5.2
USB	1 x USB 3.2 Gen 2 Type-C (with DisplayPort and PowerDelivery) 2 x Thunderbolt 4 (USB Type-C) with DisplayPort and Power Delivery	1 x USB 3.2 Gen 2 Type-C port with DisplayPort 2 x Thunderbolt 4 (USB Type-C 3.2 Gen 2) ports	1 x USB 3.2 Gen 2 Type-C port with DisplayPort 2 x Thunderbolt 4 (USB Type-C 3.2 Gen 2) ports	1 x USB 3.2 Gen 2 Type-C port with DisplayPort 2 x Thunderbolt 4 (USB Type-C 3.2 Gen 2) ports
Battery				
Type	Lithium-polymer	Lithium-polymer	Lithium-polymer	Lithium-polymer
Size	Integrated	Integrated	Integrated	Integrated
Rated capacity (Whr)	86	86	86	86
Cells	6	6	6	6

System	Dell XPS 15 9520	Dell XPS 15 9530	Dell XPS 15 9530	Dell XPS 15 9530
Display				
Size (in.)	15.6	15.6	15.6	15.6
Type	OLED, Touch, Anti-Reflect, 400 nit, InfinityEdge			
Resolution	3,456 x 2,160	3,456 x 2,160	3,456 x 2,160	3,456 x 2,160
Touchscreen	Yes	Yes	Yes	Yes
Operating system				
Vendor	Windows	Windows	Windows	Windows
Name	11 Home	11 Home	11 Home	11 Home
Build number or version	10.0.22621 Build 22621	10.0.22621 Build 22621	10.0.22621 Build 22621	10.0.22621 Build 22621
BIOS				
BIOS name and version	Dell 1.13.1	Dell 1.4.0	Dell 1.4.0	Dell 1.4.0
Dimensions				
Height (in.)	0.73	0.71	0.71	0.71
Width (in.)	13.56	13.57	13.57	13.57
Depth (in.)	9.06	9.06	9.06	9.06
Weight (lbs)	4.31	4.23	4.23	4.23

How we tested

Setting up the Dell XPS 15 laptops

Creating and updating the OEM Windows 11 home image

1. Boot the system.
2. To complete installation, follow the on-screen instructions, using the default selections when appropriate.
3. Set Screen and Sleep options to Never:
 - Right-click the desktop, and select Personalize.
 - From the left column, select System.
 - Select Power and Battery.
 - For all power options listed under the Screen and sleep drop-down menu, select Never.
4. Disable User Account Control notifications:
 - Select Windows Start, type UAC, and press Enter.
 - Move the slider control to Never notify, and click OK.
5. Run Windows Update, and install all updates available.
6. Launch the Windows Store app, and install all Store app updates.
7. Launch the Dell Command Update utility app, and update any drivers or BIOS files.
8. Go to www.dell.com and download the latest graphics driver.
9. Verify the date and time are correct, and synchronize the system clock with the time server.
10. Disable Automatic Windows Update:
 - Right-click Windows Start.
 - Select Computer Management.
 - Select Services and Applications.
 - Select Services.
 - Scroll down, and double-click Windows Update.
 - Click Stop.
 - From the Startup type drop-down menu, select Disabled.

Capturing an image

1. Connect an external HDD to the system.
2. Click Windows Menu.
3. In the search bar, type `Control Panel`.
4. Click Control Panel→System and Security→Backup and Restore (Windows 7)→Create a system image.
5. Verify that the external HDD is selected as the save drive, and click Next.
6. Verify that all drives are selected to back up, and click Next.
7. Click Start backup.
8. At Do you want to create a system repair disc, select No, and close the dialogs.

Restoring an image

1. Connect an external HDD to the system.
2. Press and hold the Shift key while Restarting the system.
3. Select Troubleshoot.
4. Select Advanced options.
5. Select See more recovery options.
6. Select System image recovery.
7. Select the User account.
8. Enter the system password, and click Continue.
9. At the Restore system files and settings screen, select Next.
10. Verify that the external HDD is selected, and click Next.
11. Once the recovery has completed, click Finish.

How we measured graphics card performance

Using 3DMark benchmarks

Setting up the 3DMark Time Spy and Time Spy Extreme tests

1. Download the 3DMark benchmark from <http://www.futuremark.com/benchmarks/3dmark/all>.
2. To install 3DMark with the default options, double-click the 3DMark installer.exe file.
3. To launch 3DMark, double-click the 3Dmark desktop icon, enter the registration code, and click Register.
4. Exit 3DMark.

Running the 3DMark Time Spy and Time Spy Extreme tests

1. Boot the system.
2. Select Windows Start.
3. Type cmd, and press Ctrl+Shift+Enter.
4. Type `Cmd.exe /c start /wait Rundl132.exe advapi32.dll,ProcessIdleTasks`. Do not interact with the system until the command completes.
5. After the command completes, wait five minutes before running the test.
6. To launch the benchmark, double-click the 3DMark desktop icon.
7. At the top of the 3DMark Home screen, click the Benchmarks tab.
8. Select the desired benchmark to run (i.e. Time Spy or Time Spy Extreme).
9. To turn off the "Include Demo" feature, move the slider button.
10. Click Run.
11. When the benchmark run completes, record the results.
12. Perform steps 7 through 11 four more times for each benchmark, and report the median of the five runs.

Read the report at <https://facts.pt/Ed60Fsf>



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