The science behind the report:

New Dell Latitude 9330 2-in-1 with a new 12th Gen Intel Core i5 processor can boost 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 New Dell Latitude 9330 2-in-1 with a new 12th Gen Intel Core i5 processor can boost performance.

We concluded our hands-on testing on August 29, 2022. 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 July 20, 2022 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 testing for the Dell Latitude devices.

	Dell Latitude® 9330 2-in-1 with an Intel® Core® i5-1240U processor	Dell Latitude 9420 2-in-1 with an Intel Core i5-1145G7 processor
SYSmark 25 benchmark		
Median Overall rating	1,408	1,275
Productivity median score	1,540	1,303
Creativity median score	1,437	1,369
Responsiveness median score	1,012	964
CrossMark benchmark		
Median Overall score	1,484	1,397

System configuration information

Table 2: Detailed information on the Dell Latitude systems we tested.

System configuration information	Dell Latitude 9330 2-in-1 with an Intel Core i5-1240U processor	Dell Latitude 9420 2-in-1 with an Intel Core i5-1145G7 processor
Processor		
Vendor	Intel	Intel
Model number	Core i5-1240U	Core i5-1145G7
Core frequency (GHz)	3.3 – 4.4	2.6 – 4.0
Number of cores	10	4
Memory		
Amount (GB)	16	16
Type	DDR5 5200MHz	DDR4 4266MHz
Graphics		
Vendor	Intel	Intel
Model number	Intel Iris® Xe Graphics	Intel Iris Xe Graphics
Storage		
Amount (GB)	256	512
Type	NVMe®	NVMe
Connectivity/expansion		
Wireless internet	Intel Wi-Fi 6E AX211	Intel Wi-Fi 6E AX210
Bluetooth	5.2	5.1
USB	1 x USB 3.2 Gen 1 Type-C port 2 x Thunderbolt 4 with Power Delivery and DisplayPort (USB Type-C)	1 x USB 3.2 Gen 1 with Powershare 2 x Thunderbolt 4 with Power Delivery and DisplayPort 2.0 (USB Type-C)
Battery		
Type	Integrated lithium-polymer	Integrated lithium-polymer
Rated capacity (Whr.)	50	40
Display		
Size (in.)	13.3	14
Resolution	2,560 x 1,600	2,560 x 1,600
Touch Capability	Yes	Yes
Operating system		
Vendor	Microsoft	Microsoft
Name	Windows 11 Pro	Windows 11 Pro
Version	21H2 Build 22000.832	21H2 Build 22000.832

System configuration information	Dell Latitude 9330 2-in-1 with an Intel Core i5-1240U processor	Dell Latitude 9420 2-in-1 with an Intel Core i5-1145G7 processor
BIOS		
BIOS name and version	Dell 1.2.1	Dell 1.12.1
Dimensions		
Height (in.)	0.32 - 0.55	0.33 – 0.54
Width (in.)	11.66	12.22
Depth (in.)	8.20	8.47
Weight (lbs.)	2.80	3.2

How we tested

Setting up the systems

Creating and updating the OEM Windows 11 Pro Image

1. Boot the system.
2. Follow the on-screen instructions to complete installation, using the default selections when appropriate.
3. In the bottom right-hand corner, click the battery icon, and adjust the Windows Power mode (plugged in) to Best Performance.
4. Unplug the system, and in the bottom right-hand corner, click the battery icon, and adjust the Windows Power mode (on battery) to Best Performance. Plug the system back in.
5. Set DPI scaling to 100%, and set Screen and Sleep options to Never:

    a. Right-click the desktop, and select Display settings.

    b. Under the Scale and layout section, for the Change the size of text, apps, and other items option select 100%.

    c. From the left column, select Power & Sleep.

    d. For all power options listed under Screen and Sleep, select Never:

6. Disable User Account Control notifications:

    a. Select Windows Start, type `UAC`, and press the Enter key.

    b. Move the slider control to Never notify, and click OK.

7. Disable Virtualization Based Security:

    a. Select Windows Start, type `Group Policy`, and press the Enter key.

    b. Select Computer Configuration➔Administrative Templates➔System➔Device Guard

    c. Double-click Turn on Virtualization Based Security.

    d. Select Disabled, and click Apply and OK.

8. Run Windows Update, and install all updates available.
9. Launch the Windows Store app, and install all Store app updates.
10. Launch each vendor proprietary utility app installed on each system, and update any drivers or BIOS files.

    • For Dell, run the Dell Command Update utility.

11. Verify the date and time are correct, and synchronize the system clock with the time server.
12. On the system with an Intel processor, install Intel CPU Runtime for OpenCL Applications for Windows OS (64bit or 32bit) from https://registrationcenter.intel.com/en/forms/?productid=3207&pass=yes.
13. Disable Automatic Windows Update:

    a. Right-click the Windows Start button.

    b. Select Computer Management.

    c. Select Services and Applications.

    d. Select Services.

    e. Scroll down, and double-click Windows Update.

    f. Click Stop.

    g. From the Startup type `drop-down menu`, select Disabled.

Capturing an image

1. Connect an external HDD to the system.
2. Open Control Panel, and click the arrow next to it to select All Control Panel Items.
3. Click Backup and Restore.
4. Click 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. At the Restore system files and settings screen, select Next.
8. Verify that the external HDD is selected, and click Next.
9. Once the recovery has completed, click Finish.

Testing with SYSmark 25

Avoiding antivirus software conflicts

SYSmark 25 is not compatible with any virus-scanning software, so we uninstalled any such software present on the notebook PCs before we installed the benchmark.

Avoiding pre-installed software conflicts

SYSmark 25 installs the following applications, which its test scripts employ:

Productivity

- Adobe® Acrobat® Pro DC
- Audacity 2.3.2
- AutoIT 3.3.15.2
- Corel WinZip 24 Enterprise
- Google® Chrome®
- Microsoft Excel 2019
- Microsoft Outlook 2019
- Microsoft PowerPoint 2019
- Microsoft Word 2019
- Shotcut v19.09.14

Creativity

- Adobe Lightroom® Classic CC 2019
- Adobe Premiere® Pro CC 2019 v20.0.6
- Adobe Photoshop® CC 2019 v13.1.5

Responsiveness

- Adobe Acrobat Pro DC
- Adobe Lightroom Classic CC 2019
- Adobe Premiere Pro CC 2019
- Adobe Photoshop CC 2019
- Google Chrome
- Microsoft Excel 2019
- Microsoft Outlook 2019
- Microsoft PowerPoint 2019
- Microsoft Word 2019

If any of these applications already exist on the system under test, they could cause problems with the benchmark due to software conflicts. To avoid any such issues, we uninstalled all conflicting pre-installed software applications—including different versions of any of the programs SYSmark 25 uses—before we installed the benchmark.

Using the SYSmark built-in configuration tool

This tool supports three levels of configuration:

1. Only makes changes that are REQUIRED for the benchmark to run.
2. Additionally, makes changes that are RECOMMENDED for repeatable results.
3. Additionally, makes OPTIONAL changes that help ensure best results.

The configuration tool makes the following configuration changes at each of the three levels:

Level 1 - Required

- Disables User Account Control (UAC)
- Set DPI Scaling to 100%
- Disables Low Battery Actions
- Disables Network Proxies
- Disables System Sleep and Hibernate
- Disables Windows Update
- Disables the WinSAT service

Level 2 - Recommended

- Disables User Account Control
- Set DPI Scaling to 100%
- Disables Low Battery Actions
- Disables Network Proxies
- Disables System Sleep and Hibernate
- Disables Windows Update
- Create BAPCo power scheme
- Set Power Plan Type to High Performance
- Set CPU High Performance
- Disables Disk Defrag
- Disables Windows Error Reporting
- Disables Windows Lock Screen
- Disables Windows Pop-ups
- Disables Screen Saver and Monitor Timeout
- Disables Windows Sidebar/Gadgets
- Disables Desktop Slideshow
- Disables Windows Defender
- Disables Windows Firewall
- Set Font Smoothing

Level 3 - Optional

- Disables Hard Disk Timeout
- Disables System Restore
- Ignores Laptop Lid Close
- Enables Dark Mode

We chose the official BAPCo "Run Benchmark" default as outlined in the BAPCo SYSmark2018 User Guide (https://bapco.com/wp-content/uploads/2020/09/BAPCo_SYSmark25_user_guide_v1.4.pdf), which runs the benchmark using the Required and Recommended options.

Setting up the test

1. Install SYSmark 25 with the default options.
2. Install the latest patch, SYSmark25_Patch2_1.0.2.34 as of July 27, 2021.

Running the test

1. Boot the system.
2. Select Windows Start.
3. Type `cmd`, and press Ctrl+Shift+Enter.
4. Type `Cmd.exe /c start /wait Rundll32.exe advapi32.dll,ProcessIdleTasks`. Do not interact with the system until the command completes.
5. After the command completes, wait 5 minutes before running the test.
6. Launch SYSmark 25.
7. Click the Settings Gear icon.
8. Verify that the iterations are set to the default 1.
9. Verify that Conditioning Run is enabled.
10. Enter a name for the benchmark run.
11. To return to the main menu, click the Back button.
12. Click Run Benchmark.
13. When the benchmark finishes, record the SYSmark 25 benchmark results.
14. Repeat steps 1 through 13 twice more, and record the median results.

Testing with BAPCo CrossMark

Setting up the test

1. Download and install CrossMark from the Microsoft Store using the registered Microsoft Store account.
2. Launch CrossMark.
3. Click Accept at the license agreement screen.
4. Click Settings.
5. Click Restore Purchase.
6. At the Success screen click Ok and close CrossMark.
7. Follow the instruction found inside the BAPCo CrossMark user guide, and make the following system configuration changes:

- Disable User Account Control (UAC)

    - Click the Windows start icon, and type `regedit` in the search field, and press Enter to open the Registry Editor.
    - Go to HKEY_LOCAL_MACHINE➔SOFTWARE➔Microsoft➔Windows➔CurrentVersion➔Policies➔System.
    - Double-click EnableLUA and type `0` in the value data field. Click OK.
    - Double-click ConsentPromptBehaviorAdmin, and type `0` in the value data field. Click OK.

- Set Power Plan Type to "High Performance"

    - Press the Windows key + X, and select Windows Powershell (Admin).
    - Type `powercfg.exe -SETACVALUEINDEX SCHEME_CURRENT SUB_NONE 245d8541-3943-4422-b025-13a784f679b7 1` and press Enter.
    - Close Windows PowerShell.

- Disable WinSAT service

    - Click the Windows start icon, and type `task scheduler` in the search field, and press Enter to open the Task Scheduler.
    - Click Task Scheduler Library➔Microsoft➔Windows➔Maintenance, and right-click on WinSAT and select Disable.

- Disable Windows Update

    - Click the Windows start icon, and select Settings➔Update & Security➔Windows Update.
    - Select Advanced Options, and turn off the following:

        - Receive updates for other Microsoft products when you update Windows
        - Download updates over metered connections
        - Restart this device as soon as possible when a restart is required to install an update
        - Show a notification when your PC requires a restart to finish updating.

- Disable Windows Search, Diagnostic policy service, and SysMain service

    - Click the Windows start icon, and type `services` in the search field and press Enter.
    - Right-click Diagnostic policy service, and select Stop.
    - Double-click Diagnostic policy service, and from the Startup type `dropdown menu` select Disabled. Click Apply and Ok.
    - Right-click Windows Search service, and select Stop.
    - Double-click Windows Search service, and from the Startup type `dropdown menu` select Disabled. Click Apply and Ok.
    - Right-click SysMain service, and select Stop.
    - Double-click SysMain service, and from the Startup type `dropdown menu` select Disabled. Click Apply and Ok.

- Disable Windows Security Center

    - Click the Windows start icon, and type `regedit` in the search field, and press Enter to open the Registry Editor.
    - Go to HKEY_LOCAL_MACHINE➔SYSTEM➔CurrentControlSet➔Services➔SecurityHealthService.
    - Double-click Start and type `4` in the value data field. Click OK.
    - Go to HKEY_LOCAL_MACHINE➔SYSTEM➔CurrentControlSet➔Services➔wscsvc.
    - Double-click Start, and type `4` in the value data field. Click OK.

- Disable Tamper protection

    - Click the Windows start icon, and select Settings➔Update & Security➔Windows Security.
    - Under Virus & Threat Protection settings click Manage settings.
    - Turn off Tamper protection.

- Disable Windows Defender

  - Click the Windows start icon, and type `regedit` in the search field, and press Enter to open the Registry Editor.
  - Go to HKEY_LOCAL_MACHINE→SOFTWARE→Policies→Microsoft→Windows Defender.
  - Right-click Windows Defender, and select New→Key→DWORD (32-bit) Value.
  - Type `DisableAntiSpyware`, and press Enter.
  - Double-click the DisableAntiSpyware, and type `1` in the value data field. Click Ok.

- Reboot the system for the changes to take effect.

Running the test

1. Boot the system.
2. Select Windows Start.
3. Type `cmd`, and press Ctrl+Shift+Enter.
4. Type `Cmd.exe /c start /wait Rundll32.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. Launch CrossMark.
7. Click Settings.
8. For Number of Iterations choose 1.
9. Enter a valid email address and click Back.
10. Click Run Benchmark.
11. Record the result and shut down the system.
12. Repeat steps 1 through 11 twice more and record the median result.

Read the report at https://facts.pt/JLJEud7 ▶

This project was commissioned by Dell Technologies.

Principled Technologies®

Facts matter.®