



The science behind the report:

The HP EliteBook 845 G10 Notebook PC: Work from anywhere without worry with superior unplugged performance and a cool and quiet experience

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 [The HP EliteBook 845 G10 Notebook PC: Work from anywhere without worry with superior unplugged performance and a cool and quiet experience](#).

We concluded our hands-on testing on June 15, 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 April 19, 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 testing.

| | HP EliteBook 845 G10 with an AMD Ryzen™ 7 PRO 7840U processor | Dell Latitude 7440 with an Intel® Core™ i7-1365U vPro processor |
|---|---|---|
| Performance benchmark results | | |
| PassMark PerformanceTest (higher is better) | | |
| Plugged-in score | 7,191.6 | 4,603.7 |
| Unplugged score | 5,975.9 | 3,399.7 |
| Cinebench R23 multi-core benchmark (higher is better) | | |
| Plugged-in score | 12,311 | 8,756 |
| Unplugged score | 12,314 | 6,396 |

| | HP EliteBook 845 G10 with an AMD Ryzen™ 7 PRO 7840U processor | Dell Latitude 7440 with an Intel® Core™ i7-1365U vPro processor |
|---|---|---|
| 3DMark Fire Strike benchmark (higher is better) | | |
| Plugged-in score | 6,431 | 4,955 |
| Unplugged score | 6,393 | 4,210 |
| 3DMark Time Spy benchmark (higher is better) | | |
| Plugged-in score | 2,744 | 1,808 |
| Unplugged score | 2,731 | 1,551 |
| Thermal testing | | |
| Thermal performance and surface temps during a sustained Cinebench R23 workload | | |
| Sustained performance score (higher is better) | 12,068 | 7,938 |
| Keyboard deck temp (°F) (lower is better) | 123.3 | 126.5 |
| Underside temp (°C) (lower is better) | 50.7 | 52.5 |
| Underside temp (°F) (lower is better) | 108.5 | 126.5 |
| Underside temp (°C) (lower is better) | 42.5 | 52.5 |
| Acoustic testing | | |
| Acoustic performance during a sustained Cinebench R23 workload | | |
| Sustained performance score (System idle (dBA) average) (Lower is better) | 26.2 | 27.2 |

System configuration information

Table 2: Detailed information on the systems we tested.

| System configuration information | HP EliteBook 845 G10 Notebook PC | Dell Latitude 7440 |
|----------------------------------|---|---|
| Processor | | |
| Vendor | AMD | Intel® |
| Model number | Ryzen™ 7 PRO 7840U | Core™ i7-1365U vPro |
| Core frequency (GHz) | 3.3 – 5.1 | 1.8 – 5.2 |
| Number of cores | 8 | 10 |
| Number of threads | 16 | 12 |
| Cache (MB) | 16 | 12 |
| Memory | | |
| Amount (GB) | 32 (2x 16GB) | 32 (2x 16GB) |
| Type | DDR5-5600 | DDR5-4800 |
| Speed (MHz) | 5,600 | 4,800 |
| Graphics | | |
| Vendor | AMD | Intel |
| Model number | Radeon™ Graphics | Iris Xe® Graphics |
| Driver version | v.31.0.14003.38003 | v.31.0.101.4502 |
| Storage | | |
| Model Number | Western Digital SN740 | SK Hynix BC901 |
| Amount (GB) | 512 | 512 |
| Type | 4x NVMe® PCIe® Gen 4 | 4x NVMe PCIe Gen 4 |
| Connectivity/expansion | | |
| Wireless internet | MediaTek Wi-Fi 6E MT7922 | Intel Wi-Fi 6E AX211 |
| Bluetooth | 5.3 | 5.2 |
| USB | 2x Thunderbolt 4 USB Type-C (USB Power Delivery, DisplayPort 1.4) 2x USB Type-A (1 charging) | 2x USB 3.2 Type-A port, (PowerShare) 2x USB Type-C Thunderbolt 4 (Power Delivery, DisplayPort 1.4) |
| Video | 1x HDMI 2.0 | 1x HDMI 2.0 |
| Battery | | |
| Type | Lithium-polymer | Lithium-polymer |
| Rated capacity (Whr) | 51 | 57 |
| Cells | 3 | 3 |

| System configuration information | HP EliteBook 845 G10 Notebook PC | Dell Latitude 7440 |
|----------------------------------|--|--|
| Display | | |
| Size (in.) | 14 | 14 |
| Type | WUXGA WLED+LBL UWVA Anti-Glare for IR Webcam 1920x1200 400 nits | FHD+ Anti-Glare, SLP 1920x1200 400 nits |
| Resolution | 1920x1200 | 1920x1200 |
| Touchscreen | No | No |
| Operating system | | |
| Vendor | Windows | Windows |
| Name | 11 Pro | 11 Pro |
| Build number or version | 22H2 22621.1992 | 22H2 22621.1992 |
| BIOS | | |
| BIOS name and version | HP V82 Ver. 01.03.01 | Dell 1.4.1 |
| Dimensions | | |
| Height (in.) | 0.76 | 0.68 – 0.71 |
| Width (in.) | 12.42 | 12.32 |
| Depth (in.) | 8.82 | 8.67 |
| Weight (lbs.) | 3.23 | 2.60 |

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 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 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:
 - Right-click the desktop, and select Display settings.
 - Under the Scale and layout section, for the Change the size of text, apps, and other items option, select 100%.
 - From the left column, select Power & Sleep.
 - For all power options listed under Screen and Sleep, select Never.
6. Disable User Account Control notifications:
 - Select Windows Start, type UAC, and press the Enter key.
 - Move the slider control to Never notify, and click OK.
7. Run Windows Update, and install all updates available.
8. Launch the Windows Store app, and install all Store app updates.
9. 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.
 - For HP, run the HP Support Assistant utility.
10. Verify the date and time are correct, and synchronize the system clock with the time server.
11. Disable Automatic Windows Update:
 - Right-click the Windows Start button.
 - 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 button and type Control Panel in the search bar. Click Control Panel\System and Security\Backup and Restore (Windows 7)\Create a system image.
3. Verify that the external HDD is selected as the save drive, and click Next.
4. Verify that all drives are selected to back up, and click Next.
5. Click Start backup.
6. When asked if 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. Select Next at the Restore system files and settings screen.
10. Verify that the external HDD is selected, and click Next.
11. Once the recovery has completed, click Finish.

Measuring performance with PassMark PerformanceTest

Setting up the test

1. Install PassMark PerformanceTest.
2. Download PassMark PerformanceTest from <https://www.passmark.com/products/performance-test/download.php>.
3. To begin the installation, press Install.
4. Select Accept to accept the license agreement, and press Next.
5. After the installation is complete, deselect Launch Performance Test, and press Finish.

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 Rundl132.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. To launch PassMark PerformanceTest, press the PassMark PerformanceTest icon.
7. To start the benchmark, press Run Benchmark.
8. When the test completes, record the results.
9. Repeat steps 6 through 8 two more times.
10. Report the median of the three runs.

Measuring performance with Cinebench R23

Setting up the test

1. Download and install Cinebench from <https://www.maxon.net/en/downloads/cinebench-r23-downloads>.

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 Rundl132.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 Cinebench.
7. Select File→Advanced benchmark.
8. Set the Minimum Test Duration to Off.
9. Select either CPU (Multi Core) or CPU (Single Core), and click Start.
10. Record the result.
11. Wait 10 minutes before re-running.
12. Repeat steps 7 through 11 twice more, and record the median result.

Measuring performance with 3DMark

Setting up the test

1. Download the 3DMark 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 test

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 5 minutes before running the test.
6. To launch the benchmark, double-click the 3DMark desktop icon.
7. At the 3DMark Home screen, click the More Tests button.
8. Select the desired benchmark to run (i.e., Fire Strike or Time Spy).
9. Move the slider button to turn off the "Include Demo" feature.
10. Click Run.
11. When the benchmark run completes, record the results.
12. Perform steps 7 through 11 two more times for each benchmark, and report the median of the three runs.

Measuring thermals and sustained performance with Cinebench R23

These tests require the following:

- A FLIR E6xt Infrared Camera
- Cinebench R23

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 Cinebench R23.
7. Select File→Advanced benchmark.
8. Verify that the Minimum Test Duration is set to the default 10 minutes (Test Throttling).
9. Select CPU (Multi Core) and click Start.
10. Record the performance results for the next five back-to-back 10-minute iterations and at the end of each run, note the ambient room temperature, and take a skin temperature photo with the FLIR E6xt infrared Camera of the top and bottom. Report the hottest spots.

Measuring acoustics

These tests requires the following items:

- Extech SDL600 Sound Level Meter/Datalogger with SD card
- Cinebench R23

Setting up the tests

1. Place the laptop under test in a sound-proofed professional sound booth.
2. Set the Extech SDL600 on a tripod so that it is 30 centimeters in front of, and 40 centimeters above the laptop under test.

Measuring acoustics while idle

1. Boot the laptop.
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 laptop until the command completes.
5. After the command completes, wait 5 minutes before running the test.
6. Start the Extech SDL600 Sound Level Meter/Datalogger and allow the laptop to run at idle for 20 minutes.
7. At the end of the 20 minutes, stop the Extech SDL600 and record the average Idle (dB).
8. Shut down the laptop.
9. Repeat steps 1 through 8 two more times.

Measuring acoustics while running Cinebench R23

Setting up the test

1. Launch Cinebench R23.
2. Select File->Advanced benchmark
3. Select File->Preferences and change the Custom Minimum Test Duration to 20 minutes, and click OK.
4. Exit Cinebench.

Running the test

5. Boot the laptop.
6. Select Windows Start.
7. Type cmd, and press Ctrl+Shift+Enter.
8. Type `Cmd.exe /c start /wait Rundl132.exe advapi32.dll,ProcessIdleTasks`. Do not interact with the system until the command completes.
9. After the command completes, wait five minutes before running the test.
10. Launch Cinebench R23.
11. In the Minimum Test Duration field, select Custom (20 minutes).
12. In Cinebench R23, simultaneously start the Extech SDL600 Sound Level Meter/Datalogger and click CPU (Multi Core) Start.
13. At the end of the Cinebench R23 run, stop the Extech SDL600, and record the average sound level (dB) while running Cinebench R23.
14. Shut down the laptop for 40 minutes and let it return to room temperature.
15. Repeat steps 1 through 10 two more times.

Read the report at <https://facts.pt/JR6tQbn>

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