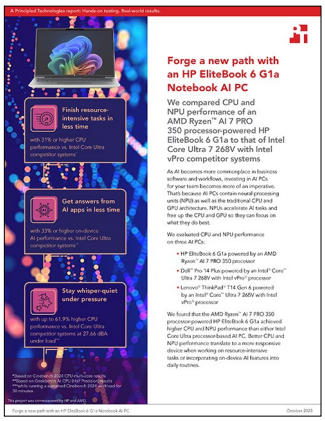

The science behind the report:

Forge a new path with an HP EliteBook 6 G1a Notebook AI PC

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 Forge a new path with an HP EliteBook 6 G1a Notebook AI PC.

We concluded our hands-on testing on September 25, 2025. 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 August 21, 2025 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 6 G1a	Dell Pro 14 Plus	Lenovo ThinkPad T14 Gen 6
Cinebench 2024			
Cinebench 2024 scores			
CPU multi-core scores (Higher is better)	816	619	612
Geekbench 6 CPU			
CPU multi-core scores (Higher is better)	13,310	11,106	11,270
Single-core scores (Higher is better)	2,883	2,837	2,860
Geekbench AI CPU scores			
Full Precision scores (Higher is better)	3,844	2,645	3,386
Half Precision scores (Higher is better)	2,046	1,362	1,529
Quantized scores (Higher is better)	8,576	5,129	6,818

	HP EliteBook 6 G1a	Dell Pro 14 Plus	Lenovo ThinkPad T14 Gen 6
LM Studio			
Time in seconds (Lower is better)	0.46	0.62	0.63
Procyon Computer Vision Benchmark scores			
Integer (INT8) overall scores (Higher is better)	1,861	1,748	1,756
Procyon Office Productivity Benchmark scores (Multitasking)			
Score with NPU (Higher is better)	6,627	6,283	6,410
Score without NPU (Higher is better)	6,882	6,719	6,707
Sustained Cinebench 2024 workload performance scores			
Score (Higher is better)	724	546	447
Thermal results – external temperatures			
Keyboard deck (Lower is better)	115.2°F/46.2°C	117.1°F/47.3°C	105.8°F/41.0°C
Underside of chassis (Lower is better)	109.2°F/42.9°C	121.8°F/49.9°C	117.7°F/47.6°C
Acoustic results			
Average dBA (Lower is better)	27.66	28.25	26.32

System configuration information

Table 2: Detailed information on the systems we tested.

System	HP EliteBook 6 G1a 14 inch Notebook AI PC	Lenovo ThinkPad T14 Gen 6	Dell Pro 14 Plus
Processor			
Vendor	AMD	Intel®	Intel
Model number	Ryzen™ AI 7 PRO 350	Core™ Ultra 7 268V with Intel vPro®	Core Ultra 7 268V with Intel vPro
Core frequency (GHz)	2.0–5.0	2.2–5.0	2.2–5.0
Number of cores	8	8	8
Logical processors	16	8	8
Memory			
Amount (GB)	32	32	32
Type	DDR5	LPDDR5x	LPDDR5x
Graphics			
Vendor	AMD	Intel	Intel
Model number	Radeon™ 860M Graphics	Intel Arc™ 140V	Intel Arc 140V
Storage			
Amount (TB)	1	1	1
Type	SSD	SSD	SSD
Connectivity/expansion			
Wireless internet	MediaTek Wi-Fi 7 MT7925 160 MHz PCIe Adapter	Intel Wi-Fi 7 BE201	Intel Wi-Fi 7 BE201
Bluetooth	5.4	5.4	5.4
USB	2x Thunderbolt 4 Type-C ports 2x USB-A 3.2 ports	2x Thunderbolt 4 Type-C ports 2x USB-A 3.0 ports	2x Thunderbolt 4 Type-C ports 2x USB-A 3.2 ports
Battery			
Type	Integrated lithium-polymer	Integrated lithium-polymer	Integrated lithium-polymer
Rated capacity (Whr)	56	57	55
Display			
Size (in.)	14	14	14
Resolution	1,920 x 1,200	1,920 x 1,200	1,920 x 1,200
Operating system			
Vendor	Microsoft	Microsoft	Microsoft
Name	Windows 11 Pro	Windows 11 Pro	Windows 11 Pro
Version	24H2 Build 26100.4946	24H2 Build 26100.4946	24H2 Build 26100.4351

System	HP EliteBook 6 G1a 14 inch Notebook AI PC	Lenovo ThinkPad T14 Gen 6	Dell Pro 14 Plus
BIOS			
BIOS name and version	HP X76 Ver. 01.02.00, 8/5/2025	Lenovo N4HET17W (1.05), 4/14/2025	Dell Inc. 2.4.2, 6/20/2025
Dimensions			
Height (in.)	0.67	0.63	0.78
Width (in.)	12.54	12.44	12.30
Depth (in.)	8.83	8.81	8.80
Weight (lb.)	3.10	3.06	3.10

How we tested

Setting up the systems

When running the tests, we used a factory provided image. We reset the system image between tests to prevent software from corrupting the test image.

Setting up and updating the OEM image

1. Boot the system.
2. To complete installation, follow the on-screen instructions, using the default selections when appropriate.
3. Set the Windows Power Plan to Best Performance.
4. Set Screen and Sleep options to Never:
    a. Right-click the desktop, and select Display settings.
    b. Select System from the left-hand column.
    c. Click Power.
    d. For all power options listed under Screen and Sleep, select Never.
5. 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.
6. Run Windows Update, and install all updates available.
7. Launch each vendor's proprietary utility app installed on each system, and update any drivers or BIOS files:
    a. For Dell, run the Dell Command | Update utility.
    b. For Lenovo, run the Lenovo Commercial Vantage application. Run all Critical and Recommended Updates.
    c. For HP, check for updates using HP PC Hardware Diagnostics Windows. Run the HP Support Assistant Application using a guest login, and run updates.
8. After running updates, in Application settings, disable automatic software updates.
9. Verify the date and time are correct, and synchronize the system clock with the time server.
10. Pause Automatic Windows Updates:
    a. Click Windows Start.
    b. Type `Windows Update settings` and press Enter.
    c. From the Pause updates drop-down menu, select Pause for 5 weeks.

Capturing an image

1. Connect an external HDD to the system.
2. Click the Windows Menu button, and in the search bar, type `Control Panel`. 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 the system asks 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. 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.

Running ProcessIdleTasks

Once every 24-hour period, before testing, we rebooted the system and ran the ProcessIdleTasks command, which forces idle processes to complete and minimizes the chance of background tasks affecting test runs.

1. Boot the system.
2. Select Windows Start.
3. Type `cmd` and press Ctrl+Shift+Enter.
4. Type `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.

Running system performance and productivity tests

Measuring performance with Cinebench 2024

Setting up the test

1. Download and install Cinebench 2024 from https://www.maxon.net/en/downloads/cinebench-2024-downloads.
2. Launch Cinebench 2024.
3. Select File → Advanced benchmark.
4. From the Minimum Test Duration drop-down menu, select Off.

Running the test

1. Launch Cinebench 2024.
2. Click File, Run All tests.
3. Record the result. Wait 10 minutes before rerunning.
4. Repeat steps 1 through 3 twice more.

Measuring performance with Geekbench 6 Pro

Setting up the test

1. Purchase a Geekbench Pro license, and download and install Geekbench 6 Pro from https://www.geekbench.com/download/.

Running the test

1. Launch Geekbench.
2. Click Run CPU Benchmark.
3. Record the result.
4. Wait 5 minutes before rerunning.
5. Repeat steps 1 through 4 twice more.

Measuring multitasking performance (with NPU)

Setting up the test

1. Download and install Procyon.
2. Open Procyon.
3. Click Office Productivity Benchmark.
4. Click Register.
5. Enter the license key for the Office Productivity Benchmark, and click Register.
6. Before running the benchmark, install a licensed version of Microsoft 365.
7. Select Windows Start.
8. Type `camera` and select Change the default settings for your camera.
9. Click the Connected Camera listed.
10. Under Windows Studio Effects, enable the following settings:
    - Automatic framing
    - Eye contact
    - Background effects with the default Standard blur applied

Running the test

1. Boot the system.
2. Launch Microsoft Teams.
3. In the pane on the left, click Calendar.
4. Click the Meet Now button, and click Start meeting.
5. Ensure Camera and Computer Audio are enabled, and click Join now.
6. Launch Procyon.
7. Click Office Productivity Benchmark.
8. Click Run. The Teams call window should be maximized in the background.
9. When the benchmark is complete, record the results.
10. Quit Microsoft Teams.
11. Wait 15 minutes before rerunning the benchmark. Repeat steps 2 through 11 twice more.

Measuring multitasking performance (without NPU)

Setting up the test

1. Download and install Procyon.
2. Open Procyon.
3. Click Office Productivity Benchmark.
4. Click Register.
5. Enter the license key for the Office Productivity Benchmark, and click Register.
6. Before running the benchmark, install a licensed version of Microsoft 365.
7. Select Windows Start.
8. Type `camera` and select Change the default settings for your camera.
9. Click the Connected Camera listed.
10. Under Windows Studio Effects, disable the following settings:
    - Automatic framing
    - Eye contact
    - Background effects with the default Standard blur applied

Running the test

1. Boot the system.
2. Launch Microsoft Teams.
3. In the pane on the left, click Calendar.
4. Click the Meet Now button, and click Start meeting.
5. Ensure Camera and Computer Audio are enabled, and click Join now.
6. Launch Procyon.
7. Click Office Productivity Benchmark.
8. Click Run. The Teams call window should be maximized in the background.
9. When the benchmark is complete, record the results.
10. Quit Microsoft Teams.
11. Wait 15 minutes before rerunning the benchmark. Repeat steps 2 through 11 twice more.

Running AI tests

Measuring performance with Procyon AI Computer Vision Benchmark

Setting up the test

1. Purchase and download the Procyon AI Computer Vision Benchmark from https://benchmarks.ul.com/procyon.
2. Install the Procyon benchmark.
3. Launch Procyon.
4. Select Settings, and input the Procyon AI Computer Vision license key.
5. Close Procyon.

Running the test

1. Launch Procyon.
2. Select the Computer Vision test.
3. For the Integer test, make the following selections:
    a. For AMD processor-based devices, select the AMD Ryzen AI tab.
    b. For Intel processor-based devices, select the Intel OpenVINO tab.
4. Select NPU, and select Integer.
5. Click Run.
6. When the test completes, record the results, and wait 15 minutes before rerunning.
7. Complete three runs.

Measuring performance with Geekbench AI Pro

Setting up the test

1. Purchase and download a Geekbench AI Pro license from https://www.geekbench.com/ai/download/.
2. Run the installer, and install using all defaults.

Running the test

1. Launch Geekbench AI.
2. Enter the license key.
3. For CPU testing, select:
    - AI Framework: ONXX/OpenVINO
    - AI Backend: CPU
    - AI Device: processor
4. Click Run AI Benchmark.
5. Wait 5 minutes, and complete steps 3 through 4 twice more.

Measuring performance with LM Studio

Setting up the test

1. Download LM Studio from https://lmstudio.ai.
2. Run the installer, and install using all defaults.
3. Launch LM Studio.
4. In the Select a model to load field, download the Llama 3.1 8B model.

Running the test

1. Launch LM Studio.
2. Select Load a model, and choose the Meta-Llama-3.1-8B-Instruct-Q4_K_M model.
3. When the model is fully loaded, in the message field, type: `How can AMD Ryzen Processors in HP workstations help enterprise customers deliver better user experience, productivity performance and ROI?` and click Send.
4. When the test is complete, record the results.
5. Eject the model.
6. Delete the Chat messages.
7. Open a new chat by clicking the + icon, and reload the same model.
8. Wait 5 minutes, open a new chat window, and repeat steps 2 through 7 twice more.

Measuring thermals and sustained performance with Cinebench 2024

These tests require the following:

- A FLIR E6-XT Infrared Camera
- Cinebench 2024

Running the test

1. Start the thermal recorder.

2. Boot the system and leave the system plugged in.
3. Launch Cinebench 2024.
4. Select File → Advanced benchmark.
5. Verify that the Custom Test setting is set to 30 minutes.
6. Select CPU (Multi Core), and click Start.
7. Record the performance results and skin temperatures after 30 minutes. Note the ambient room temperature, and take a skin temperature photo with the FLIR E6xt infrared Camera of the keyboard deck and underside of chassis.
8. Repeat steps 1 through 7 twice more.

Measuring system acoustics with Cinebench 2024

These tests require the following items:

- Extech SDL600 Sound Level Meter/Datalogger with SD card
- Cinebench 2024

Setting up the test

1. Place the system under test in a sound-proofed professional sound booth.
2. Set the Extech SDL600 on a tripod so that it is 2 feet in front of, and 1 foot above, the bottom of the system under test.
3. Download and install Cinebench 2024 from https://www.maxon.net/en/downloads/cinebench-2024-downloads.
4. Launch Cinebench 2024.
5. Select File → Advanced benchmark.
6. Select File → Preferences, and change the Custom Minimum Test Duration to 30 minutes, and click OK.
7. Exit Cinebench, and shut down the system.

Running the test

1. Boot the system.
2. Launch Cinebench 2024.
3. In the Minimum Test Duration field, select Custom (30 minutes).
4. Start the Extech SDL600 Sound Level Meter/Datalogger.
5. Click the Cinebench 2024 CPU (Multi Core) Start button.
6. At the end of the 30-minute Cinebench 2024 run, stop the Extech SDL600, and record the average sound level (dB) while running Cinebench 2024.
7. Shut down the system for 60 minutes, and let it return to room temperature. Repeat steps 1 through 7 twice more.

Read the report ▶

This project was commissioned by HP and AMD.

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