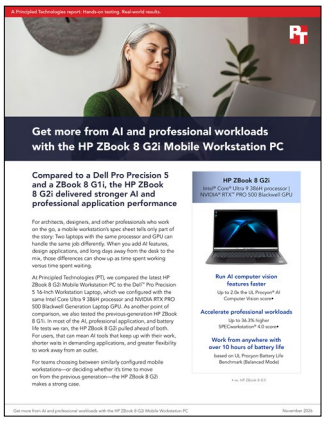


**The science behind the report:**

# Get more from AI and professional workloads with the HP ZBook 8 G2i Mobile Workstation 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 Get more from AI and professional workloads with the HP ZBook 8 G2i Mobile Workstation PC.

We concluded our hands-on testing on October 1, 2026. 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 19, 2026 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 https://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.

| Performance & productivity tests | HP ZBook 8 G2i | HP ZBook 8 G1i | Dell Pro Precision 5 |
|---|---|---|---|
| UL Procyon® AI Computer Vision 2.0 Benchmark - GPU (Procyon - v2.12.2641, Procyon AI Computer Vision 2.0 - v1.0.567) | Windows ML - GPU, float16 | Windows ML - GPU, float16 | Windows ML - GPU, float16 |
| **Overall score** | 1,905 | 931 | 1,395 |
| ConvNeXt throughput (images/s) | 881.890 | 557.150 | 797.600 |
| BLIP - Decoder Inference speed (it/s) | 297.673 | 154.221 | 212.325 |
| BLIP - Encoder Inference speed (it/s) | 161.091 | 58.403 | 95.622 |
| SAM 2.1 - Decoder Inference speed (it/s) | 634.071 | 466.474 | 500.251 |
| SAM 2.1 - Encoder Inference speed (it/s) | 36.922 | 16.412 | 26.203 |
| DETR - Inference speed (it/s) | 86.415 | 49.533 | 61.351 |
| ESRGAN - Inference speed (it/s) | 7.166 | 3.002 | 5.126 |

| Performance & productivity tests | **HP ZBook 8 G2i** | **HP ZBook 8 G1i** | **Dell Pro Precision 5** |
|---|---|---|---|
| Procyon AI Image Generation Benchmark - Stable Diffusion XL (FP16) (Benchmark v1.1.265) | NVIDIA® TensorRT | NVIDIA TensorRT | NVIDIA TensorRT |
| **Overall score** | 20 | 10 | 17 |
| Overall duration (sec) | 28,694.168 | 54,755.366 | 34,911.244 |
| Overall image generation speed (s/image) | 1,793.385 | 3,422.210 | 2,181.953 |
| SPECworkstation® 4.0 Benchmark v4.0.0 | | | |
| **AI & Machine Learning overall score** | 1.57 | 1.59 | 1.65 |
| **Energy overall score** | 1.54 | 1.12 | 1.62 |
| **Financial Services overall score** | 1.08 | 0.91 | 1.01 |
| **Life Sciences overall score** | 1.95 | 1.43 | 1.82 |
| **Media & Entertainment overall score** | 1.83 | 1.39 | 1.64 |
| **Product Design overall score** | 1.74 | 1.20 | 1.82 |
| **Productivity & Development overall score** | 1.17 | 0.94 | 0.92 |
| SPECapc® for Maya 2024 (SPECapc for Maya 2024 v2024-1.01, Autodesk® Maya® 2024 v2024.2) | | | |
| **CPU composite score** | 5.30 | 4.02 | 5.18 |
| GPU composite score | 3.49 | 3.06 | 3.68 |
| GPU Shaded | 2.84 | 2.62 | 3.01 |
| GPU Shaded SSAO | 3.83 | 3.32 | 4.08 |
| GPU Wireframe on Shaded | 3.50 | 3.06 | 3.68 |
| GPU Wireframe on Shaded SSAO | 3.81 | 3.29 | 4.02 |
| GPU Textured | 3.74 | 3.20 | 3.90 |
| GPU Textured SSAO | 3.35 | 2.93 | 3.51 |
| CPU Arnold Raytrace | 5.30 | 4.02 | 5.18 |
| Evaluation Cache composite | 2.92 | 3.33 | 3.13 |
| Animation Playback on CPU, Evaluation Cache Disabled | 3.31 | 3.32 | 3.50 |
| Animation Playback on CPU, Evaluation Cache Enabled | 2.58 | 3.33 | 2.80 |

Table 2: Results of our battery life testing.

| Battery life tests | HP ZBook 8 G2i | HP ZBook 8 G1i | Dell Pro Precision 5 |
|---|---|---|---|
| Procyon Battery Life Benchmark (Office Productivity) - Balanced Mode (Office v16.0.20326.20100, Procyon UI - v2.8.1207.64, Benchmark - v1.6.1440) | 200 nits | 205 nits | 202 nits |
| **Total Duration (hours:min)** | 10:27 | 8:40 | 10:14 |
| Normalized battery life (minutes per Wh) | 8.14 | 6.75 | 6.40 |
| Maximum Performance score | 148,000 | 184,000 | 222,000 |
| Minimum Performance score | 101,000 | 96,000 | 139,000 |
| Median Performance score | 145,500 | 175,000 | 215,000 |
| Procyon Battery Life Benchmark (Office Productivity) - Best Performance Mode (Office v16.0.20326.20100, Procyon UI - v2.8.1207.64, Benchmark - v1.6.1440) | 200 nits | 205 nits | 202 nits |
| **Total Duration (hours:min)** | 9:34 | 7:45 | 9:10 |
| Normalized battery life (minutes per Wh) | 7.45 | 6.04 | 5.73 |
| Maximum Performance score | 246,000 | 217,000 | 275,000 |
| Minimum Performance score | 103,000 | 96,000 | 192,000 |
| Median Performance score | 243,000 | 213,500 | 262,000 |

# System configuration information

Table 3: Detailed information on the systems we tested.

| System | HP ZBook 8 G2i 16" | Dell Pro Precision 5 16" | HP ZBook 8 G1i 14" |
|---|---|---|---|
| Processor | | | |
| Vendor | Intel® | Intel | Intel |
| Model number | Core™ Ultra 9 386H | Core Ultra 9 386H | Core Ultra 9 285H |
| Core frequency (GHz) | 1.6 – 4.9 | 1.6 – 4.9 | 1.0 – 5.4 |
| Number of cores | (16)<br>4x Performance Cores<br>8x Efficient Cores<br>4x Low Power Efficient Cores | (16)<br>4x Performance Cores<br>8x Efficient Cores<br>4x Low Power Efficient Cores | (16)<br>6x Performance Cores<br>8x Efficient Cores<br>2x Low Power Efficient Cores |
| Number of threads | 16 | 16 | 16 |
| L3 cache (MB) | 18 | 18 | 24 |
| AI engine capabilities NPU TOPS | 50 | 50 | 13 |
| NPU driver | Intel 32.0.100.4403 | Intel 32.0.100.4778 | Intel 32.0.100.4724 |
| Memory | | | |
| Amount (GB) | 64 | 64 | 64 |
| Type | DDR5 | LPDDR5x | DDR5 |
| Speed (MT/s) | 5,600 | 8,533 | 5,600 |
| Graphics | | | |
| Vendor | NVIDIA® | NVIDIA | NVIDIA |
| Model number | RTX PRO 500 Blackwell | RTX PRO 500 Blackwell | RTX 500 Ada |
| Driver | NVIDIA 32.0.15.9595 | NVIDIA 32.0.15.9671 | NVIDIA 32.0.15.9595 |
| Storage | | | |
| Model | KIOXIA® KBG80ZNV1T02 | SK Hynix® PVC10 | Samsung® MZVL21T0HCLR-00BH1 |
| Amount (TB) | 1 | 1 | 1 |
| Type | PCIe® Gen5 NVMe M.2 SSD | PCIe Gen4 NVMe M.2 SSD | PCIe Gen4 NVMe M.2 SSD |
| Connectivity/expansion | | | |
| WLAN | Intel Wi-Fi 7 BE211 | Intel Wi-Fi 7 BE211 | Intel Wi-Fi 7 BE201 |
| Bluetooth | 6.0 | 6.0 | 5.4 |
| USB | 2x Thunderbolt 4 USB Type-C 40Gbps<br>1x USB Type-A 5Gbps signaling rate<br>1x USB Type-C 10Gbps | 2x Thunderbolt 4 USB Type-C 40Gbps<br>2x USB Type-A 5Gbps signaling rate | 2x Thunderbolt 4 with USB Type-C 40Gbps<br>1x USB Type-A 5Gbps<br>1x USB Type-C 20Gbps |
| Video | HDMI 2.1 | HDMI 2.1 | HDMI 2.1 |
| Battery/AC adapter | | | |
| Type | Lithium-ion | Lithium-ion | Lithium-ion |
| Rated capacity (Wh) | 77 | 96 | 77 |

| System | HP ZBook 8 G2i 16” | Dell Pro Precision 5 16” | HP ZBook 8 G1i 14” |
|---|---|---|---|
| Display | | | |
| Type | WUXGA 400 nits | WUXGA 400 nits | WUXGA 300 nits |
| Size (inches) | 16 | 16 | 14 |
| Resolution | 1,920 x 1,200 | 1,920 x 1,200 | 1,920 x 1,200 |
| Touchscreen | No | No | No |
| Operating system | | | |
| Vendor | Microsoft | Microsoft | Microsoft |
| Name | Windows 11 Pro | Windows 11 Pro | Windows 11 Pro |
| Build number or version | 25H2 Build 26200.8973 | 25H2 Build 26200.9168 | 25H2 Build 26200.9278 |
| BIOS | | | |
| BIOS name and version | HP Y70 Ver.01.01.06 (04/02/2026) | Dell 1.5.2 (07/22/2026) | HP X70 Ver.01.05.01 (07/13/2026) |
| Dimensions | | | |
| Height (inches) | 0.75 | 0.54 – 0.72 | 0.74 |
| Width (inches) | 14.13 | 14.09 | 12.43 |
| Depth (inches) | 9.84 | 10.08 | 8.74 |
| Weight (pounds) | 4.62 | 5.09 | 3.73 |

# How we tested

## Setting up the systems

### Setting up and updating the OEM image

1. Boot the system.
2. Follow the on-screen instructions to complete installation, using the default selections when appropriate.
3. Set the Windows (plugged in) Power Mode to Best Performance.
4. Set Screen and Sleep options to Never:
    a. Right-click the desktop, and select Display settings.
    b. From the left column, select System.
    c. Click Power & Battery.
    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 available updates.
7. Run the HP/Dell Support Assistant utilities, and install all recommended BIOS and driver updates available.
8. Verify the date and time are correct, and synchronize the system clock with the time server.
9. Pause Automatic Windows Updates:
    a. Click the Windows Start button.
    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 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 you see the prompt 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.

## Testing with Procyon AI Computer Vision 2.0 Benchmark

### Setting up the test

1. Purchase and download the Procyon AI Computer Vision 2.0 benchmark from https://benchmarks.ul.com/procyon.
2. Install the benchmark.
3. Double-click the installer.
4. Click Next.
5. To agree to the EULA, click Agree, and click Next.
6. Click Next.
7. Launch Procyon.
8. Select Settings, and input the license key.
9. Close Procyon.
10. *Note: It is necessary to have Windows Update enabled for the first run so that the benchmark can check online for the latest Windows ML version.

### Running the test

1. Launch Procyon.
2. Select the Computer Vision 2.0 Benchmark test:
    a. For GPU testing, select the GPU for Inference device type, and leave the default Inference Engine set to Windows ML.
3. To begin the test, click Run.
4. When the test completes, record the results.
5. Wait 15 minutes before rerunning.
6. Repeat steps 1 through 7 two more times, and report the median result.

## Testing with the Procyon AI Image Generation Benchmark

### Setting up the test

1. Purchase and download the Procyon AI Image Generation benchmark from https://benchmarks.ul.com/procyon.
2. Install the Procyon benchmark.
3. Double-click the installer.
4. Click Next.
5. Click to agree to the EULA, and click Next.
6. Click Next.
7. Launch Procyon.
8. Select Settings, and input the license key.
9. Close Procyon.

### Running the test

1. Launch Procyon.
2. Select the Image Generation Benchmark test.
3. Under the Stable Diffusion 1.5 (FP16) test option, select the appropriate AI Inference Engine and select the graphics device name to be used.
4. To begin the test, click Run.
5. Complete and record 3 runs.
6. Under the Stable Diffusion 1.5 (INT8) test option, select the appropriate AI Inference Engine and select the graphics device name to be used.
7. To begin the test, Click Run.
8. Complete and record 3 runs.
9. Under the Stable Diffusion XL (FP16) test option, select the appropriate AI inference Engine and select the graphics device name to be used.
10. To begin the test, click Run.
11. Complete steps 1 through 10 two more times, and record the median result.

## Testing with SPECworkstation 4.0

### Setting up the test

1. Go to https://gwpg.spec.org/benchmarks/benchmark/specworkstation-4_0/, purchase, and download the vendor license of the benchmark.
2. To install, click the SPECworkstation-Setup-4.0.0.exe.
3. Turn off Windows Defender Firewall.
4. Click Windows Menu button.
5. In the search bar, type `Firewall`
6. Select Windows Defender Firewall.
7. In the left-hand column, select Turn Windows Defender Firewall on or off.
8. Under both Private and Public network settings, choose Turn off Windows Defender Firewall, and click OK.

### Running the test

1. Launch SPECworkstation.
2. Click Run.
3. Record the results, and reboot the system
4. Complete steps 1 through 3 two more times, and record the median result.

## Testing with SPECapc for Maya 2024

### Setting up the test

1. Purchase and install a full license of Maya 2024 from https://www.autodesk.com/products/maya/overview?term=1-YEAR&tab=subscription.
2. Go to https://gwpg.spec.org/benchmarks/benchmark/specapc-maya-2024, and purchase and download the vendor license of the benchmark.
3. Click the SPECapcMaya2024-1.01.exe to extract installation files.
4. Click SPECapc_Maya2024_combined.exe to install the benchmark.
5. Set the DPI scaling to 100%:
    a. Right-click the desktop, and select Display settings.
    b. From the Scale drop-down menu, select 100%.
6. Shut down the system.

### Running the test

1. To launch the SPECapc Maya benchmark, click the desktop icon.
2. Click Run Benchmark.
3. When the test completes, record the results.
4. Complete steps 1 through 3 two more times, and report the median result.

## Measuring battery life with the Procyon Office Productivity Battery Life Benchmark

### Setting up the test

1. Boot the system.
2. Verify the following display and power settings:
    a. Right-click the desktop, and select Display settings.
    b. Uncheck the box next to Change brightness automatically when lighting changes, if available.
    c. Uncheck the box next to Change brightness based on content, if available.
    d. In the Scale drop-down menu, select 100%.
    e. From the pane on the left, select System.
    f. Click Power & Battery.
    g. For all power options listed under Screen and Sleep, select Never.
    h. Set Power mode while unplugged to the appropriate setting (Best Performance, Balanced, or Best Power Efficiency).
    i. Under Energy Saver, disable Lower screen brightness when using energy saver.

3. Download and install Procyon.
4. Open Procyon.
5. Click Battery Life Office Productivity Benchmark.
6. Click Register.
7. Enter the license key, and click Register.
8. Click Calibrate.
9. Click Start.
10. Using a nit meter, adjust the screen brightness to as close to 200 nits as possible and click Next.
11. Fill out the information, and click Save calibration.
12. Close Procyon.
13. Before running the benchmark, make sure to install a licensed version of Microsoft 365; open Word, Excel, PowerPoint, and Outlook applications; and disable tips when possible.

## Running the test

1. Boot the system.
2. Ensure the system is fully charged.
3. Launch Procyon.
4. Select the Procyon Battery Life option.
5. Under the Office Productivity tab, click Run.
6. When prompted, unplug the system.
7. When the benchmark completes, plug in and power up the system.
8. Record the results.
9. Complete steps 2 through 8 two more times, and report the median result.

This project was commissioned by HP

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**How we created this report**

A PT team, which includes the contributors we've listed and others, created this report and performed the technical work behind it. We used AI to help outline, draft, and proofread this report, as well as to aid in chart creation, image editing, and content layout.

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