

WebXPRT 5 release notes

Thank you for using WebXPRT 5. If you have any questions or concerns, please contact us at BenchmarkXPRTSupport@principledtechnologies.com

Running WebXPRT 5

To run WebXPRT 5, navigate to www.WebXPRT5.com or <https://www.principledtechnologies.com/wx5>.

The WebXPRT 5 UI is simple. Here is the start page.

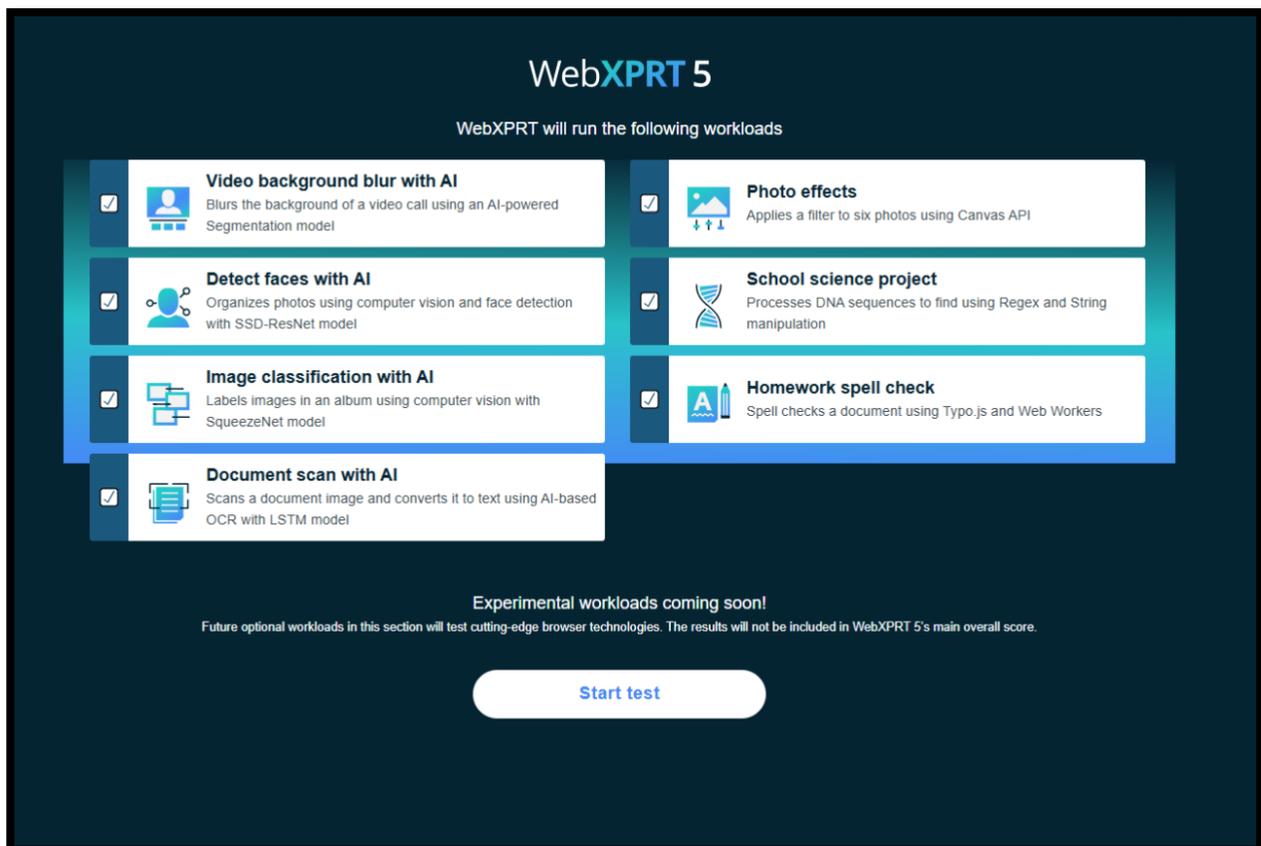


Figure 1: The WebXPRT 5 start page.

By default, all tests are selected. You have the option of running one test at a time by deselecting all the other tests. However, you will not get an overall score unless you run all seven tests.

Start the test by clicking the white Start test button below the test list. Small form factor devices may require you to scroll down to see all the controls

Once you click Start, the test will begin. As the tests start running, you will see a description of each test and a test completion percentage indicator in the upper right-hand corner of the screen.

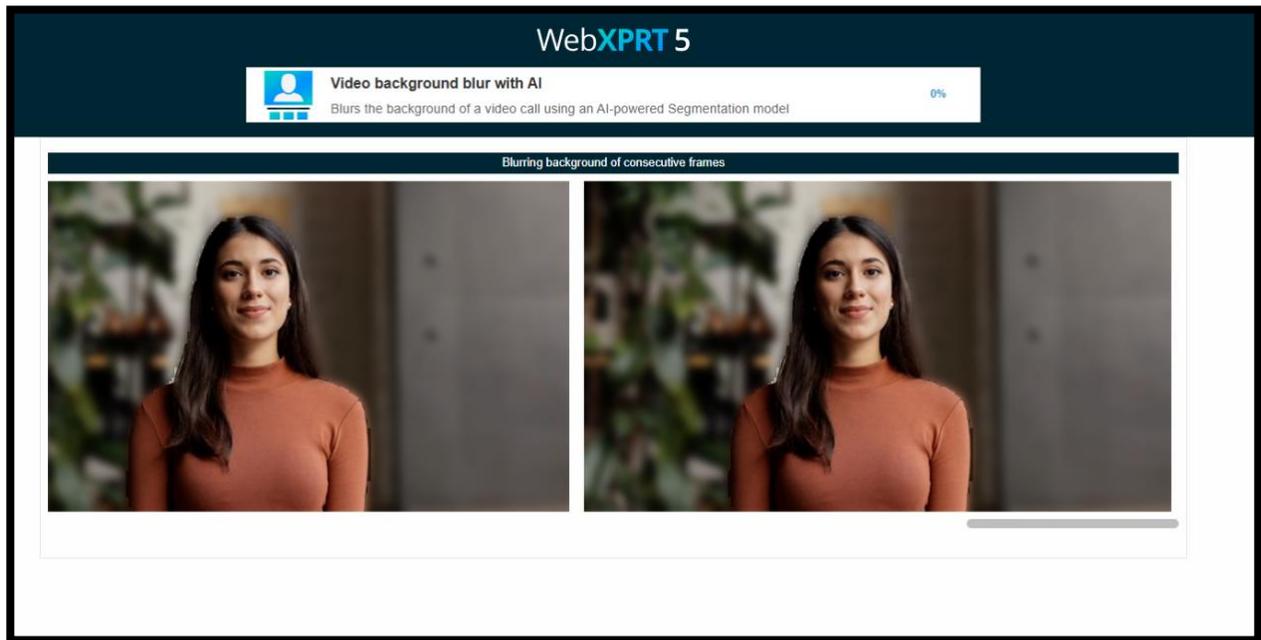


Figure 2: WebXPRT 5 during testing. Note the test completion percentage indicator in the upper right-hand corner.

After the test completes, WebXPRT displays the overall score at the top of the results screen. The overall score is the primary score that most testers use for performance comparisons. The results screen also offers the option to submit your results to be considered for publication on WebXPRT.com, to download your results locally, and to run the test again. Further down, you will find additional test information and individual workload scores. On mobile devices, you may need to scroll to see all the results data.

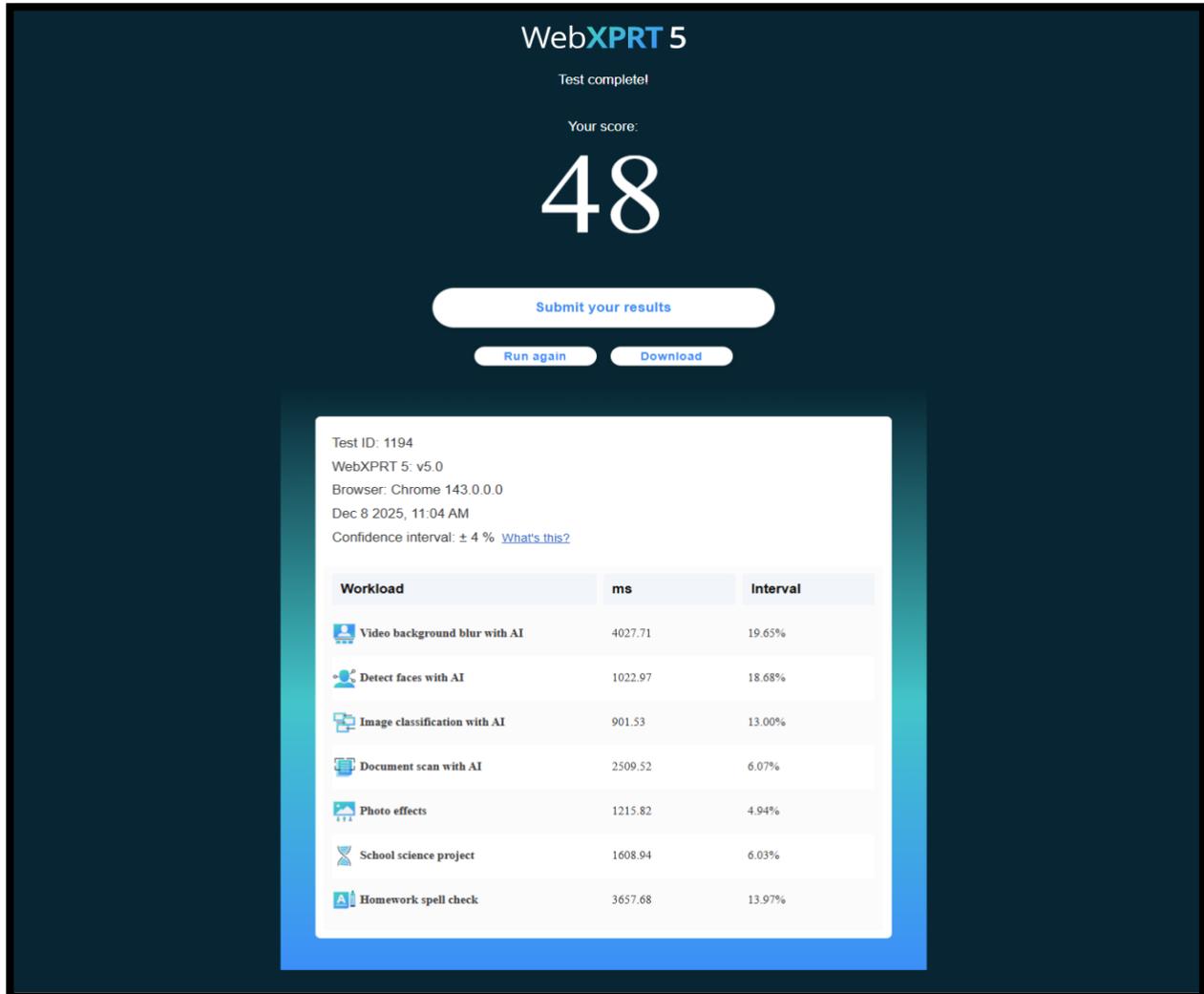


Figure 3: The WebXPRT 5 results screen.

Submitting results

To submit results after a run, click the Submit your results button below the overall score, complete the short submission form, and click Submit. The results submission form requires the following system information:

- Device name
- Model number
- Processor
- Memory
- Operating system
- Browser and version

Please be as specific as possible when filling in the system information fields. Detailed device information helps us assess whether individual scores represent valid test runs.

We also ask submitters to enter a contact email address in case we need to ask follow-up questions about the submission. After you submit your score, we'll contact you to confirm the name we should display as the source for the data. You can use one of the following:

- Your first and last name.
- “Independent tester” (if you wish to remain anonymous).
- Your company’s name (if you have permission to submit the result in their name). If you want to use a company name, we ask that you provide your work email address.

We will not publish any additional information about you or your company without your permission.

To run the test using automation

You can run scripts to automate WebXPRT 5 testing, controlling the execution of the WebXPRT 5 benchmark using parameters and values appended to the WebXPRT URL. WebXPRT has three available parameters:

mode

WebXPRT 5 currently offers one test type (core tests). In the future, we hope to add the option of experimental tests:

- All tests: all
- Single subtest: subtest

subtest parameter

This lets you specify the tests to run by using the following indexes:

- Video background blur with AI: 0
- Detect faces with AI: 1
- Image classification with AI: 2
- Document scan with AI: 3
- Photo effects: 4
- School science project: 5
- Homework spell check: 6

To use the automation feature, start with the URL

<https://www.principledtechnologies.com/wx5/auto.html>, then append a question mark (?) and add your desired parameters and values separated by ampersands (&).

For example, to run all the subtests and download the results, you would use the URL

<https://www.principledtechnologies.com/wx5/auto.html?mode=all>.

To run any single subtest, use the indexes above along with the parameter “subtest”

For example, use <https://www.principledtechnologies.com/wx5/auto.html?mode=custom&subtest=1> to run only the “Detect faces with AI” subtest.

To complete the automation run successfully, the browser on the system under test will need to be set to enable downloads from <https://www.principledtechnologies.com>. This can be done by running the test using automation once and clicking “Allow” when a dialog appears for permission to download. Or, to enable downloads in the browser, users will typically need to allow specific sites or automatic multi-file downloads.

- **Chrome:** Navigate to Settings > Privacy & Security > Site Settings > Additional Permissions > Automatic downloads. Then use the "Add" button under "Allowed to download multiple files" to enter the website's domain.
- **Microsoft Edge:** Navigate to Settings > Privacy, search, and services > Site permissions > All permissions > Automatic downloads. Then use the "Add" button under "Allowed to download multiple files" to enter the website's domain.
- **Safari on MacOS:** Navigate to the site > Safari > Settings > Websites. Select the website from “Currently Open Websites” and select “Allow.”

Changes between WebXPRT 4 and WebXPRT 5

WebXPRT 5 shares core harness and workload structures with WebXPRT 4, except for a few changes and additions, which we have detailed below.

Harness and UI changes

1. We have updated the aesthetics of the WebXPRT UI to make WebXPRT 5 visually distinct from older versions. We did not significantly change the flow of the UI.
2. We have updated content in some of the workloads to reflect changes in everyday technology, such as upgrading most of the photos in the photo processing workloads to higher resolutions.

Workloads in WebXPRT 5

1. **Test calibration:** Apple MacBook Air (13.6-inch, M2 2022, Model A2681) with MacOS Tahoe Version 26.1 Chrome browser: 143.0.7499.41.
2. **Score calculations:** WebXPRT 5 scores will be in a lower range than WebXPRT 4 scores.

The current workloads include:

1. **Video Background Blur with AI:** This tests the functionality of blurring the background during a video meeting using AI. It uses human_segmentation_pphumanseg_2023mar.onnx from https://huggingface.co/opencv/human_segmentation_pphumanseg/tree/main and OpenCV.js (WASM opencv-4.11.0 + patch-<https://github.com/opencv/opencv/pull/27773>). The foreground human detection and blurring is applied on 10 frames, each with a resolution of 640 x 360 pixels.

2. Detect faces with AI: This test organizes an album with five images (720 x 480) using a Resnet based model (res10_300x300_ssd_iter_140000_fp16.caffemodel) and OpenCV.js (WASM opencv-4.11.0 + patch-<https://github.com/opencv/opencv/pull/27773>).
3. Image classification with AI: This test classifies five 718 x 480 images from the ImageNet computer vision dataset using squeezeNet.onnx v1.0 and OpenCV.js (WASM opencv-4.11.0 + patch-<https://github.com/opencv/opencv/pull/27773>).
4. Document scan with AI: This test performs an Optical Character Recognition (OCR) task while scanning an image of a document using tesseract.js (WASM) v6.0.1 with LSTM (+ patch - <https://github.com/Balearica/tesseract/pull/8>) to produce text.
5. Photo effects: This test uses Canvas and applies an Emboss filter to six photos of varying resolutions – 1080 x 1080, 3872 x 2592, and 4928 x 3264.
6. School science project: This test exercises Regex and Strings functionality while providing educational insights from the sequence data in a FASTA file.
7. Homework spell check: This test reviews a document for spelling errors using typo.js.

Bugs and limitations

At the time of the GA build release, WebXPRT 5 contained no known bugs or limitations.

License information

Below, we list license information for the software used in each of WebXPRT's workloads.

1. For workloads using OpenCV.js, version 4.11.0 is used <https://github.com/opencv/opencv/blob/4.x/LICENSE>.
2. Photo effects: MOZILLA PUBLIC LICENSE Version 1.1 – included in photoedit\scripts\effects.js.
3. Document scan with AI: Tesseract.js v6.0.1 is used. Apache License - <https://github.com/naptha/tesseract.js/blob/master/LICENSE.md>
4. School science project: The license is in the onlinehw\scripts\sequencingFuncs.js file. The DNA sequencing uses the following license:

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5. Homework spell check: Typos.js v 1.2.1 The license is included at onlinehw\scripts\license.txt. Copyright (c) 2011, Christopher Finke. All rights reserved.

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