



The science behind the report:

Complete virtual classroom tasks faster with a Chromebook powered by Intel

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 [Complete virtual classroom tasks faster with a Chromebook powered by Intel](#).

We concluded our hands-on testing on January 17, 2021. 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 January 15, 2021 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: Time, in seconds, to complete various tasks on each Chromebook®. Less time is better. We report the median of three test runs.

Task	Intel® Celeron® N5100 processor-powered Chromebook (seconds)	MediaTek Helio P60T processor-powered Chromebook (seconds)	Intel processor-powered Chromebook percent less time
Opening a Google Slides™ presentation from Google Drive™ during a Google Meet™ call	29.5	62.6	52%
Importing 140 photos into Adobe® Lightroom®	114.7	241.1	52%
Batch-processing 140 photos with a filter preset in Adobe Lightroom	36.4	94.6	61%
Exporting 140 photos from Adobe Lightroom	86.1	235.9	63%
Using the Copy and Tinker function for the Rally Car project in Autodesk® Tinkercad®	29.0	45.0	35%
Rendering the 3D Rally Car project in Autodesk Tinkercad	17.7	33.4	47%

Table 2: Results of the Speedometer 2.0 benchmarking test for each Chromebook. Higher score is better. Each result represents the median of three test runs.

	Intel Celeron N5100 processor-powered Chromebook	MediaTek Helio P60T processor-powered Chromebook	Intel processor-powered laptop percent higher score
Speedometer 2.0 score	75.0	28.0	167%

System configuration information

Table 3: The table below presents detailed information on the systems we tested.

System	Acer Chromebook R853T (pre-production unit)	Lenovo® CT-X636F
Processor	Intel Celeron N5100	MediaTek Helio P60T
Processor frequency (GHz)	1.10	2.0
Processor cores	4	8
Memory (GB)	4	4
Storage (GB)	32	64
USB	2 x USB 3.1 Type-C 2 x USB 3.1 Gen 1	1 x USB 3.1 Type-C
Battery type	Lithium ion	Lithium ion
Battery capacity (Wh)	48	38
Display (in.)	12.0	10.1
Display resolution	1,366 x 912	1,920 x 1,200
OS (version)	88.0.4324.90	87.0.4280.142
System weight (lbs.)	2.98	2.03

How we tested

Application testing

For each scenario, we downloaded, installed, and pinned the requisite apps to the Chrome shelf. For applications that required accounts, we created test profiles and logged in the users on each device. We ran a total of three test runs for each task. We reset the Chromebook between each run.

Testing tasks in Adobe Lightroom

Importing 140 photos

1. From the Adobe Lightroom home page, click the blue Import Photos icon.
2. Sort by Device Folders, and select the unarchived test photos by clicking the checkbox next to the folder name.
3. Simultaneously start the timer and click Add.
4. When the import dialog completes, stop the timer.

Batch-processing 140 photos with filter preset

1. From the Adobe Lightroom home page, click the collection containing the test photos.
2. Click the first image.
3. Click the Adjustments icon.
4. To apply auto-adjustments, click Auto.
5. In the top right, click the menu button, and select Copy Settings.
6. Leave the default settings, and click OK.
7. To return to the collection view, click the back arrow.
8. To select the first photo, long-click it.
9. In the top right, click the menu button, and select Select All.
10. Click the menu button again, and select Paste Settings.
11. Simultaneously start the timer and click Apply.
12. When the processing dialog closes and the phrase Changes applied to 140 photos appears, stop the timer.

Exporting 140 photos

1. From the Adobe Lightroom home page, click the collection containing the test photos.
2. To select the first image, click it.
3. From the drop-down menu, click Select All images.
4. With all images selected, click the Share icon.
5. From the Share dialog box, click Export As...
6. Leave the default settings.
7. Simultaneously start the timer and click the checkmark icon.
8. When the export dialog completes, stop the timer.

Testing in Autodesk Tinkercad

Using the Copy and Tinker function on the 3D Rally Car project

1. From the Chrome web browser, navigate to the test project at <https://tinkercad.com/things/4x4r4zQvIbL>.
2. Simultaneously start the timer and click Copy and Tinker.
3. When the 3D model has fully loaded, stop the timer.

Rendering the 3D Rally Car project

1. From the Chrome web browser, navigate to the test project at <https://tinkercad.com/things/4x4r4zQvIbL>.
2. Click Copy and Tinker.
3. When the test project has loaded, simultaneously start the timer and click the Bricks icon.
4. When the 3D Bricks view has fully loaded, stop the timer.

Running the Speedometer 2.0 benchmark test

1. From the Chrome web browser, navigate to <https://browserbench.org/Speedometer2.0/>.
2. Ensure the browser window fits the required view port size.
3. Click Start Test.
4. When the test completes, record the results.

Multitasking with Google Meet

To conduct our multitasking test, we opened Google Meet in the Chrome web browser and joined a two-participant video meeting.

Joining the meeting

1. Open the Chrome web browser.
2. Open a new tab, and enter the meeting URL.
3. Click to join the meeting.
4. Ensure video is connected. For our testing, to ensure the video content was roughly the same across devices, we pointed each Chromebook's camera at an unadorned ceiling with no other visual information in frame.
5. From the meeting host, share and begin playback of the following YouTube video: <https://www.youtube.com/watch?v=4VQYiksNQFQ>.
6. Open a new tab, and complete the tasks below.

Opening a Google Slides presentation from Google Drive

1. Navigate to <https://drive.google.com>.
2. Locate the test presentation file. Right-click the file, and hover the cursor over Open With.
3. Simultaneously start the timer and click Google Slides.
4. When the presentation fully loads in Google Slides, stop the timer.

Intel contributes to the development of benchmarks by participating in, sponsoring, and/or contributing technical support to various benchmarking groups, including the BenchmarkXPRT Development Community administered by Principled Technologies.

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Read the report at <http://facts.pt/KkdKcrY> ►

This project was commissioned by Intel.



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