

Intel® Celeron® N4020 processor-powered Chromebook™†‡Δ

10th Generation Intel Core™ i5-10210U processor-powered Chromebook†Δ

Create and share content in less time with a fast Chromebook

Chromebooks powered by an Intel Core i5 processor and an Intel Celeron processor completed various tasks in less time than a Chromebook powered by an AMD A6 processor

At Principled Technologies, we performed tasks in apps for video chatting, photo sharing, gaming, video editing and exporting, and more using three Chromebooks:

- 10th Generation Intel Core i5-10210U processor-powered Chromebook
- Intel Celeron N4020 processor-powered Chromebook
- AMD A6-9220C processor-powered Chromebook

We found that while the Intel Celeron processor-powered Chromebook performed well, the 10th Generation Intel Core i5-10210U processor-powered Chromebook saved significant time compared to the other devices on many tasks.

While staying connected to each other is different these days, it doesn't always have to be difficult. Choosing a fast, responsive Chromebook could help you document important moments in your life and share them with friends, family, and the whole world.



Up to **78% less time** editing photos while video chatting†Δ



Up to **55% less time** creating and exporting a video†Δ



Up to **62% less time** creating and exporting videos†Δ

†Acer Chromebook Spin 713 powered by a 10th Generation Intel Core i5-10210U processor and Acer Chromebook 315 powered by an Intel Celeron N4020 processor compared to an HP Chromebook 14A G5 powered by an AMD A6-9220C processor.

ΔSee the science behind this report for [detailed system configurations](#) and [benchmark results](#).



In this report, text in the **turquoise sections** represents fictional scenarios based on the results of PT testing. Though the people aren't real, the scenarios represent a lifelike picture of the benefits users may see in the real world.

How we tested

We measured the time required to complete tasks in a variety of apps on each Chromebook. For the purposes of this report, we grouped these tasks into workflows based on how people use these apps in real life. The majority of this report focuses on the overall timing of each workflow rather than specific timings for each task. For a detailed look at how the Chromebooks performed on each task, see the [science behind this report](#).



^ASee the science behind this report for detailed system configurations and benchmark results.



The graduating classes of 2020 may not have been able to go on the big trips they'd been planning this year—but one college's graduates are making do with a big video chat party using Google Meet and the 10th Generation Intel Core i5-10210U processor-powered Chromebook devices that have gotten them through the school year. During their call, these former students share what they've been up to lately, with photos of newly redecorated rooms, small family outings, and selfies of everyday life.

Save time editing photos while simultaneously video chatting

Video chat services like Google Meet allow us to be in each other's lives from a distance, and Google Photos can enable you to share moments in your life with the people who matter. In our tests, an AMD A6-9220C processor-powered Chromebook took more than 9 minutes to complete a set of photo editing tasks while simultaneously supporting a video call. The Intel Celeron N4020 processor-powered Chromebook completed these tasks sooner, taking 4 minutes, 32 seconds. The 10th Generation Intel Core i5-10210U processor-powered Chromebook required just 1 minute, 57 seconds, saving a significant amount of time over both of the other Chromebooks.

Notably, using Adobe® Lightroom® to batch-process 140 photos with a preset filter took just 13.4 seconds on the 10th Generation Intel Core i5-10210U processor-powered Chromebook; 1 minute, 27 seconds on the Intel Celeron N4020 processor-powered Chromebook; and just over 2 minutes on the AMD A6-9220C processor-powered Chromebook.

Save up to 7.1 minutes editing photos while video chatting with Google Meet, Unarchive photos, Adobe Lightroom, and Google Photos

Time (sec)

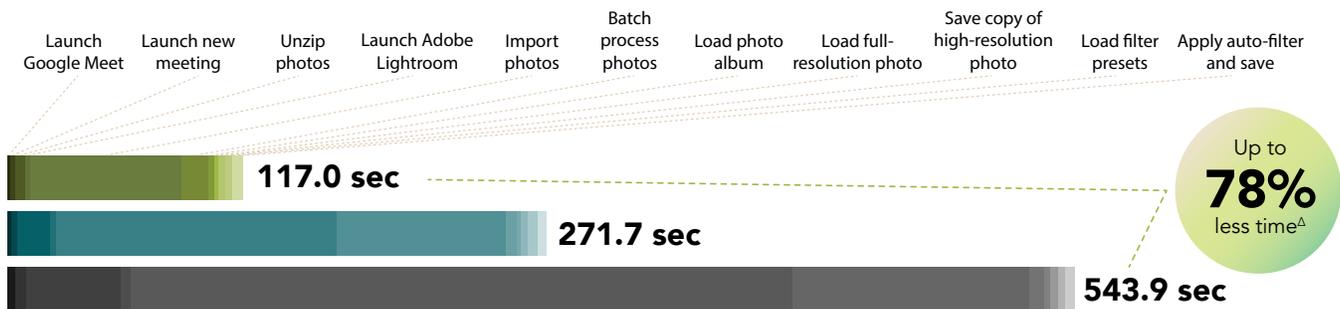


Figure 1: Time (in seconds) to complete a series of tasks for editing photos while video chatting. Less time is better. Source: Principled Technologies.

- Chromebook with a 10th generation Core i5-10210U processor
- Chromebook with an Intel Celeron N4020 processor
- Chromebook with an AMD A6-9220C processor

Google Meet

Google has made their premium video conferencing product free and available to the general public. According to Google, the app is used in schools, governments, and companies worldwide.¹

Google Photos

Google Photos enables users to make simple edits to photos, share pictures and videos with friends and family, and store memories on the cloud for safekeeping.³

Adobe Lightroom

Adobe Lightroom is a free photo editing and camera app that enables you to use customizable filters and other options to create your photo masterpiece.²

^ASee the science behind this report for [detailed system configurations](#) and [benchmark results](#).

Marisa and Rafael have garnered a decent sized audience on a gaming-focused video sharing site. After waving goodbye to their fellow grads, the pair starts work on a new video to upload for their fans. With the 10th Generation Intel Core i5-10210U processor-powered Chromebook, they can easily use screencasting software to capture video of their gaming sessions alongside their color commentary and use audio and video editing apps to perfect the content before exporting it.



Save time when screencasting and editing videos

Google Play Store offers a wide selection of games and content creation tools for the aspiring influencer. The AMD A6-9220C processor-powered Chromebook took 29 minutes, 28 seconds to complete a set of gaming and content creation tasks. Both Intel processor-powered Chromebooks required considerably less time, with the 10th Generation Intel Core i5-10210U processor-powered Chromebook taking 13 minutes, 2 seconds and the Intel Celeron N4020 processor-powered Chromebook taking 13 minutes, 36 seconds.

Additionally, the 10th Generation Intel Core i5-10210U processor-powered Chromebook took just 8.6 seconds to open an audio file, while the AMD A6-9220C processor-powered Chromebook required nearly 4 minutes.

Save up to 16.4 minutes creating a video

with Iron Blade, Screencastify, Lexis Audio Editor, and Kinemaster

Time (sec)

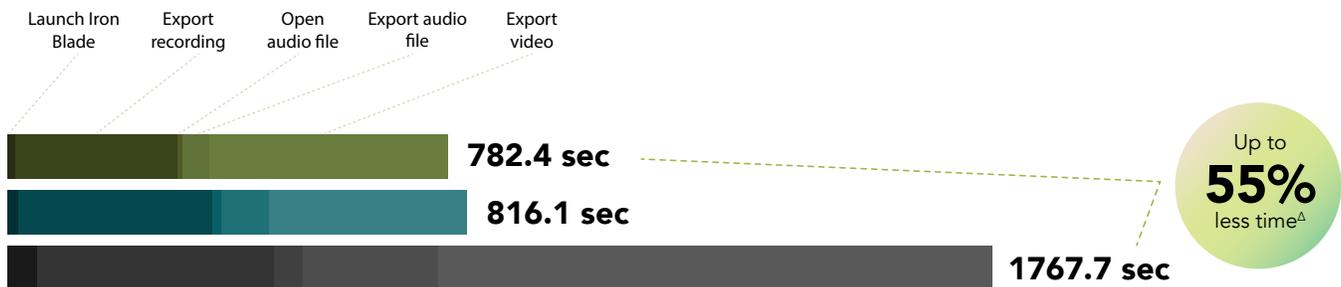


Figure 2: Time (in seconds) to complete a series of tasks for creating and exporting a screencast video. Less time is better. Source: Principled Technologies.

- Chromebook with a 10th generation Core i5-10210U processor
- Chromebook with an Intel Celeron N4020 processor
- Chromebook with an AMD A6-9220C processor

Iron Blade: Medieval Legends RPG

Iron Blade is a dungeon-crawling role playing game set in medieval Europe. According to the official website, millions of players have joined in on the action.⁴

Screencastify

Screencastify is a Chrome extension for capturing, editing, and sharing videos from a system desktop, browser tab, or webcam. According to their website, more than 12 million people use Screencastify around the world.⁶

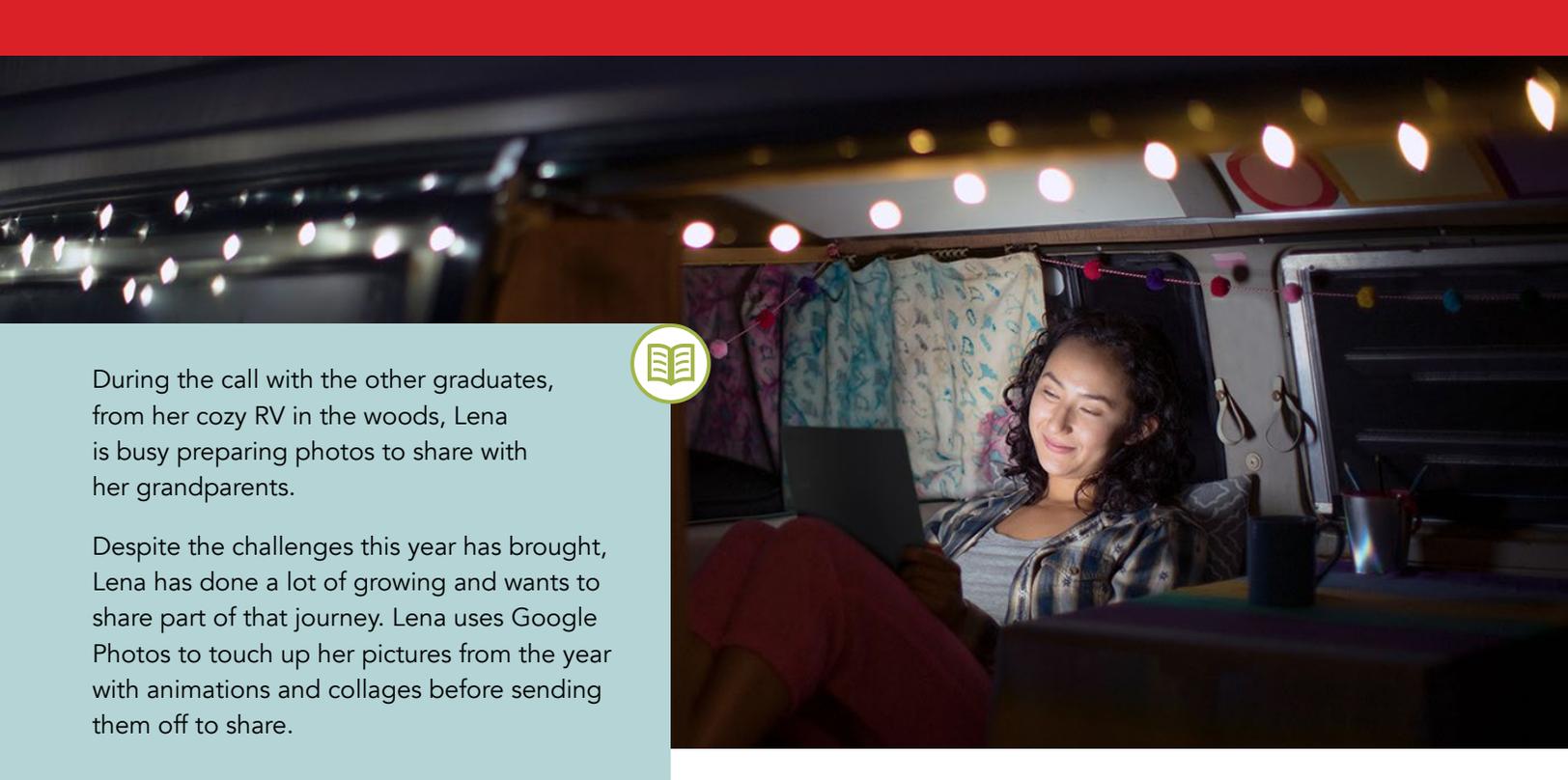
KineMaster

KineMaster is a free-to-use video editing app available on Google Play Store that allows users to add and customize audio, apply keyframe animation techniques, export 4K 2160p video and more.⁵

Lexis Audio Editor

Lexis Audio Editor is an app that enables fast editing of audio recordings. Features include normalization, noise reduction, a 10-band equalizer, a compressor, and more.⁷

^ΔSee the science behind this report for [detailed system configurations](#) and [benchmark results](#).



During the call with the other graduates, from her cozy RV in the woods, Lena is busy preparing photos to share with her grandparents.

Despite the challenges this year has brought, Lena has done a lot of growing and wants to share part of that journey. Lena uses Google Photos to touch up her pictures from the year with animations and collages before sending them off to share.



Save time editing photos during a video call

With the Intel processor-powered Chromebooks we tested, editing photos in Google Photos while chatting with friends on Google Meet can be quick and uncomplicated. While the AMD A6-9220C processor-powered Chromebook required 40 seconds to complete a set of photo-editing tasks, the Intel Celeron N4020 processor-powered Chromebook took 31 seconds and the 10th Generation Intel Core i5-10210U processor-powered Chromebook took just 26.4 seconds. Additionally, the 10th Generation Intel Core i5-10210U processor-powered Chromebook took just 3 seconds to open a shared Google Photos album, while the AMD A6-9220C processor-powered Chromebook required more than twice that time at 7.7 seconds.

Save up to 14.2 seconds creating photo animations and albums with Google Photos

Time (sec)

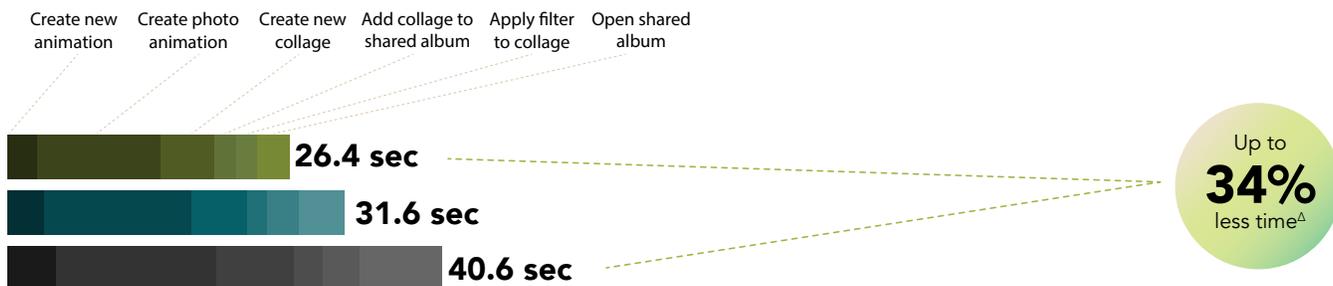


Figure 3: Time (in seconds) to complete a series of tasks for editing and sharing photos in Google Photos while simultaneously video chatting. Less time is better. Source: Principled Technologies.

- Chromebook with a 10th generation Core i5-10210U processor
- Chromebook with an Intel Celeron N4020 processor
- Chromebook with an AMD A6-9220C processor

^ΔSee the science behind this report for [detailed system configurations](#) and [benchmark results](#).

Qasim, another recent graduate, is spending part of his summer on a solo road trip out to the coast. Qasim maintains a sizeable audience on social media, sharing lifestyle and travel photos and perfectly curated music playlists. After the call with his classmates, Qasim starts working on a new video to upload. Though the pandemic has affected the places he can go, it hasn't affected his love of the world in all its beauty.



Save time creating, editing, and exporting social media content

Many photo, audio, and video editing apps are available for Chromebooks. The AMD A6-9220C processor-powered Chromebook required more than 9 minutes to complete a set of media editing tasks, while the 10th Generation Intel Core i5-10210U processor-powered Chromebook finished in 3 minutes, 22 seconds and the Intel Celeron N4020 processor-powered Chromebook took not much longer at 5 minutes, 14 seconds.

One large difference in the individual tasks was in using WeVideo to export a video. The 10th Generation Intel Core i5-10210U processor-powered Chromebook completed the task in 2 minutes, 49 seconds. The Intel Celeron N4020 processor-powered Chromebook took 3 minutes, 58 seconds, and the AMD A6-9220C processor-powered Chromebook required 7 minutes, 18 seconds.

Save up to 5.7 minutes creating and exporting videos with Krita, Unarchive video, Soundtrap, and WeVideo

Time (sec)

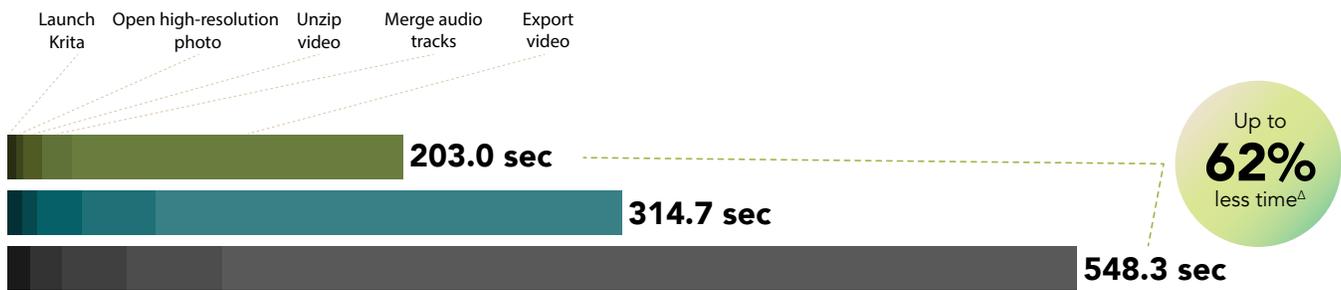


Figure 4: Time (in seconds) to complete a series of tasks for creating and exporting videos. Less time is better. Source: Principled Technologies.

- Chromebook with a 10th generation Core i5-10210U processor
- Chromebook with an Intel Celeron N4020 processor
- Chromebook with an AMD A6-9220C processor

Krita

Krita is a free, professional, open-source painting program available in early access on Google Play Store. Some use cases for Krita include concept art, texture paintings, and illustrations and comics.⁸

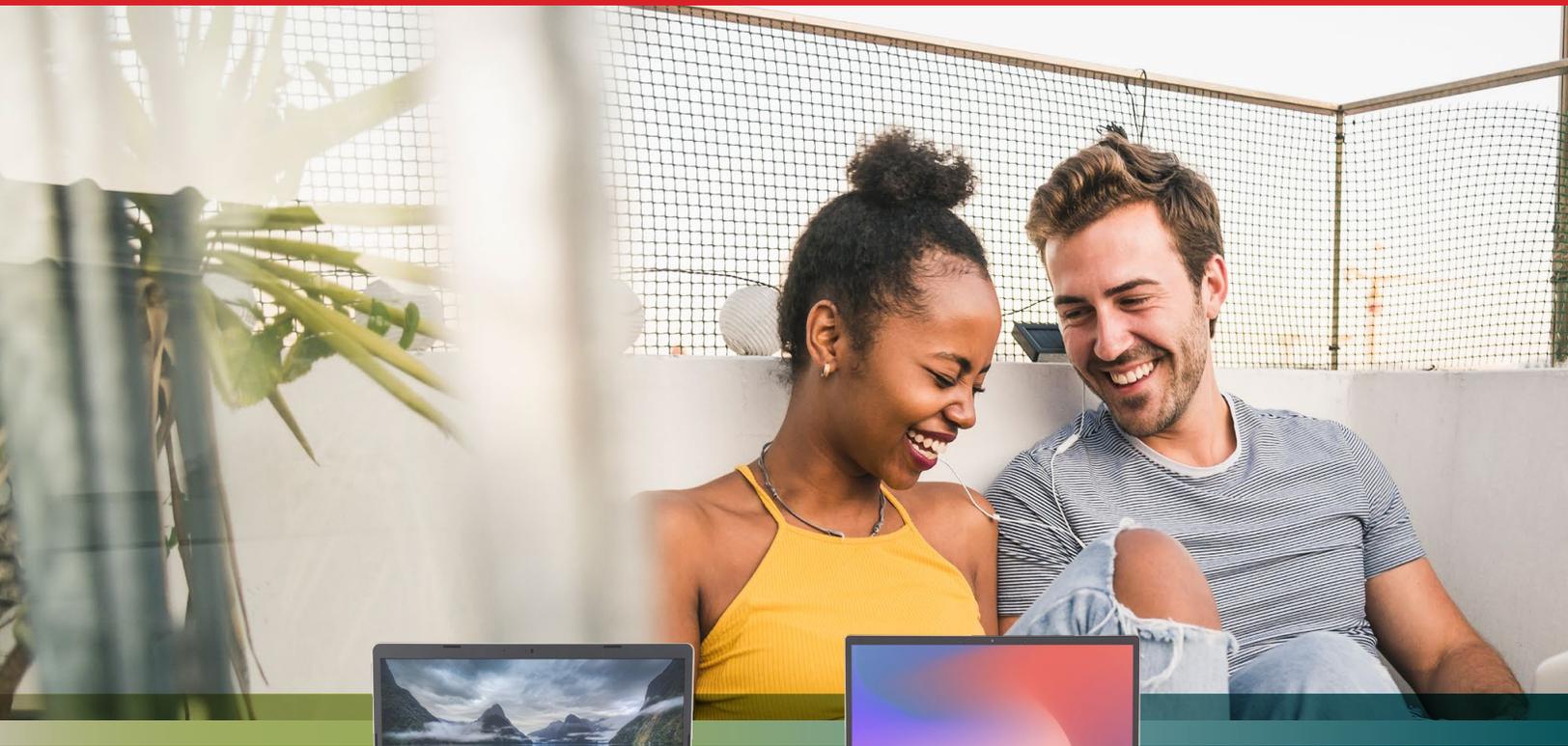
WeVideo

Featured on tech journalism sites such as TechCrunch, Wired, CNET, and more, the WeVideo Video Editor enables users to create “beautiful videos” and share them with the world.¹¹ In February 2018, the Video Editor app earned the distinction of an Android Excellence App.¹²

Soundtrap

Soundtrap is a web application for creating digital audio creations such as music, podcasts, language studies, and more.⁹ According to Soundtrap, more than 10,000 teachers worldwide trust their educational program.¹⁰

^ΔSee the science behind this report for [detailed system configurations](#) and [benchmark results](#).



Conclusion

These days, our devices are doing a lot of work in keeping us connected to each other. Chromebooks that can handle a variety of tasks quickly and responsively could help you to chat, share, create, and play with less frustration.

In our tests, a 10th Generation Intel Core i5-10210U processor-powered Chromebook and an Intel Celeron N4020 processor-powered Chromebook completed tasks in a variety of creative, gaming, and video chat apps faster than a Chromebook powered by an AMD A6-9220C processor.

For more information, visit <https://intel.com/Chromebooks>

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- 1 Javier Soltero, "Google Meet premium video meetings—free for everyone," accessed September 21, 2020, <https://www.blog.google/products/meet/bringing-google-meet-to-more-people/>.
 - 2 "Adobe Lightroom," accessed September 21, 2020, https://play.google.com/store/apps/details?id=com.adobe.lrmobile&hl=en_US.
 - 3 "Google Photos," accessed September 21, 2020, https://play.google.com/store/apps/details?id=com.google.android.apps.photos&hl=en_US.
 - 4 "GameLoft | Iron Blade," accessed September 21, 2020, <https://www.gameloft.com/en/game/iron-blade>.
 - 5 "KineMaster - Video Editor, Video Maker," accessed September 21, 2020, https://play.google.com/store/apps/details?id=com.nexstreaming.app.kinemasterfree&hl=en_US.
 - 6 "Screencastify | The #1 Screen Recorder for Chrome," accessed September 21, 2020, <https://screencastify.com>.
 - 7 "Lexis Audio Editor," accessed September 21, 2020, <https://play.google.com/store/apps/details?id=com.pamsys.lexisaudioeditor>.
 - 8 "Krita | Digital Painting. Creative Freedom," accessed September 21, 2020, <https://krita.org/en>.
 - 9 "Soundtrap Studio," accessed September 21, 2020, <https://play.google.com/store/apps/details?id=com.soundtrap.studioapp>.
 - 10 "Soundtrap – Make Music Online," accessed September 21, 2020, <https://www.soundtrap.com/edu/>.
 - 11 "Video Editor," accessed September 21, 2020, https://play.google.com/store/apps/details?id=com.wevideo.mobile.android&hl=en_US.
 - 12 "WeVideo Awarded as Android Excellence App by Google," accessed September 21, 2020, <https://www.wevideo.com/news/WeVideo-Awarded-as-Android-Excellence-App-by-Google>.

We concluded our hands-on testing on September 14, 2020. 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 September 7, 2020 or earlier. Unavoidably, these configurations may not represent the latest versions available when this report appears.

Our results

Table 1: Time in seconds to complete tasks in various apps.

Task	Configuration A	Configuration B	Configuration C	Percentage win		
	Acer Chromebook Spin 713 with an Intel® Core™ i5-10210U processor	Acer Chromebook 315 with an Intel Celeron® N4020 processor	HP Chromebook 14A G5 with an AMD® A6-9220C processor	Configuration A vs. Configuration B	Configuration B vs. Configuration C	Configuration A vs. Configuration C
Scenario 1						
Median sum of all tasks for Scenario 1	117.0	271.7	543.9	56%	50%	78%
Google Meet						
Launch Google Meet	1.6	2.1	4.2	22%	50%	61%
Launch new meeting	2.4	3.3	5.2	26%	37%	53%
Unarchive photos						
Unzip 140 photos from desktop	5.2	16.5	49.0	68%	66%	89%
Adobe Lightroom						
Launch Adobe® Lightroom®	2.7	3.2	4.9	17%	33%	45%
Import 140 photos	77.6	143.7	339.4	45%	57%	77%
Batch process 140 photos with filter preset	13.4	87.1	121.5	84%	28%	88%
Google Photos						
Load photo album	3.3	5.4	8.1	38%	32%	58%

Task	Configuration A	Configuration B	Configuration C	Percentage win		
	Acer Chromebook Spin 713 with an Intel® Core™ i5-10210U processor	Acer Chromebook 315 with an Intel Celeron® N4020 processor	HP Chromebook 14A G5 with an AMD® A6-9220C processor	Configuration A vs. Configuration B	Configuration B vs. Configuration C	Configuration A vs. Configuration C
Load full resolution photo	1.7	2.0	2.8	13%	29%	39%
Save copy of high resolution photo	3.5	3.6	3.9	3%	7%	10%
Load filter presets	3.9	5.1	3.8	23%	-34%	-2%
Apply auto filter and save changes	5.2	4.5	4.6	-15%	1%	-13%
Scenario 2						
Median sum of all tasks for Scenario 2	933.3	959.1	1894.3	4%	53%	55%
Iron Blade: Medieval Legends RPG						
Launch Iron Blade: Medieval Legends RPG	15.0	20.8	54.6	27%	61%	72%
Screencastify						
Export recording to 30 FPS .mp4	286.7	343.0	418.6	16%	18%	31%
Lexis Audio Editor						
Open audio file	8.6	16.7	51.4	48%	67%	83%
Export audio file	48.2	84.4	238.7	42%	64%	79%
Kinemaster						
Time to export 720p video	423.8	351.0	984.2	-20%	64%	56%
Scenario 3						
Median sum of all tasks for Scenario 3	26.4	31.6	40.6	16%	22%	34%

Task	Configuration A	Configuration B	Configuration C	Percentage win		
	Acer Chromebook Spin 713 with an Intel® Core™ i5-10210U processor	Acer Chromebook 315 with an Intel Celeron® N4020 processor	HP Chromebook 14A G5 with an AMD® A6-9220C processor	Configuration A vs. Configuration B	Configuration B vs. Configuration C	Configuration A vs. Configuration C
Google Photos						
Create new photo animation	2.7	3.4	4.5	19%	24%	39%
Create photo animation	11.5	13.8	15.0	16%	7%	22%
Create new photo collage	4.9	5.2	7.2	5%	27%	32%
Add photo collage to New Shared Album	2.1	1.8	2.6	-13%	29%	20%
Apply auto filter to photo collage	1.9	2.9	3.4	31%	14%	42%
Time to open shared Google Photos album	3.0	4.2	7.7	28%	45%	60%
Scenario 4						
Median sum of all tasks for Scenario 4	203.0	314.7	548.3	35%	42%	62%
Krita						
Launch Krita	4.4	7.7	12.1	42%	36%	63%
Open high resolution photo	3.9	7.6	15.8	48%	51%	75%
Unarchive video						
Unzip video from desktop	9.4	23.0	33.4	59%	30%	71%
Soundtrap						
Merge audio tracks	15.7	37.4	48.8	58%	23%	67%
WeVideo						
Export video	169.5	238.8	438.0	28%	45%	61%

System configuration information

Table 2: The table below presents detailed information on the systems we tested.

System	Acer Chromebook Spin 713	Acer Chromebook 315	HP Chromebook 14A G5
Processor	Intel Core i5-10210U	Intel Celeron N4020	AMD A6-9220C
Processor frequency (GHz)	1.6	1.10	1.8
Processor cores	4	2	2
Memory (GB)	8	4	8
Storage (GB)	128	64	64
Bluetooth	5	5	4.2
USB	2x USB 3.1 Type-C, 1x USB 3.1 Gen 1	2x USB 3.1 Type-C, 2x USB 3.1 Gen 1	2x USB 3.1 Type-C, 2x USB 3.1 Gen 1
Battery type	Lithium-Ion	Lithium-Ion	Lithium-Ion
Battery capacity (Wh)	48	48	47.36
Display	13.5" 2256x1054	15.6" 1366x768	14" 1920x1080
OS (version)	85.0.4183.84	85.0.4183.84	85.0.4183.84
System Weight (lbs.)	3.02	4.19	3.46

How we tested

Creating the background workload

To simulate typical Chromebook use, we ran a combination of news, email, chat, music, document viewing, and social media websites in the background. For websites that required accounts, we created test profiles and logged in the users on each device.

1. From the shelf, open Chromebook settings.
2. Navigate to the On Startup section of the settings.
3. Select Open a specific page or set of pages.
4. Insert the following URLs, and click OK:
 - [Forbes.com](https://forbes.com)
 - [Markets.ft.com/data](https://markets.ft.com/data)
 - [Arstechnica.com](https://arstechnica.com)
 - mail.google.com
 - slack.com (logged into Slack chat, #general channel)
 - drive.google.com
 - docs.google.com (viewing document)
 - youtube.com/feed/music
 - drive.google.com (viewing document)
 - sheets.google.com (viewing spreadsheet)
 - twitter.com
 - facebook.com
5. Restart the Chromebook. Before testing, navigate through each tab to ensure that both devices have fully loaded the same content.

Testing the applications

For each scenario, we downloaded, installed, and pinned the requisite apps to the Chrome shelf. For applications that required accounts or Google Authentication, we created test profiles and logged in the users on each device. We tested each task for a given scenario sequentially. After one run of a given scenario, we reset the Chromebook and performed two additional runs for a total of three.

Scenario one

Google Meet

Launching Google Meet

1. Simultaneously start the timer and launch the Meet app from the shelf.
2. When the app fully loads and the webcam preview appears, stop the timer.

Launching a new Google Meet meeting

1. From the Meet main screen, simultaneously start the timer and click New meeting.
2. When the meeting invite code appears and the webcam preview refreshes, stop the timer.
3. Join a four-way video call, and minimize the app for the remainder of the Scenario One tasks.

Unarchiving photos

Unzipping 140 photos from the desktop

1. From the shelf, launch the Files app.
2. Navigate to the test archive location.
3. Double-click to open the test archive using the default system viewer.
4. Select the contents of the test archive, and click and drag the contents to an empty folder.
5. Simultaneously start the timer and un-click the dragged content.
6. When the copying files dialog completes, stop the timer.

Adobe Lightroom

Launching Adobe Lightroom

1. Simultaneously start the timer and launch Adobe Lightroom from the shelf.
2. When the app has fully loaded, stop the timer.

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 the 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. Click the menu button in the top right, and select Copy Settings.
6. Leave the default Copy Settings, and click OK.
7. To return to the collection view, click the Back arrow.
8. Long-click the first photo to select it.
9. In the top-right, click the menu button, and select Select All.
10. In the top-right, click the menu button, and select Paste Settings.
11. Simultaneously start the timer and click Apply.
12. When the processing dialog closes, and “Changes applied to 140 photos” appears, stop the timer.

Google Photos

Loading a photo album

1. From the app shelf, reopen Google Meet.
2. Simultaneously start the timer and click the link to the test Google Photos album.
3. When the photo album fully loads in the Chrome browser, stop the timer.

Loading a full-resolution photo

1. From the test photo album, simultaneously start the timer and click the first image.
2. When the photo fully loads with detail, stop the timer.

Saving a copy of a high-resolution photo

1. With the high-resolution photo open, click the menu icon in the top right.
2. Simultaneously start the timer and click Download.
3. When the download completes, and the image preview appears in the notifications pane, stop the timer.

Loading the filter presets

1. With the high-resolution photo open, click the menu icon in the top right.
2. Simultaneously start the timer and click Edit.
3. When the Color filter preset previews fully load, stop the timer.

Applying an auto filter and saving changes

1. From the Color filter preset edit pane, click Auto to choose the automatic color filter preset.
2. Simultaneously start the timer and click Done.
3. When the edited photo refreshes, stop the timer.

Scenario two

Iron Blade: Medieval Legends RPG

Launching the game

1. Simultaneously start the timer and launch the Iron Blade: Medieval Legends RPG app from the shelf.
2. When the game loads into the tutorial gameplay, stop the timer.

ScreenCastify

Exporting a recording to 30 FPS .mp4

1. Reopen the Chrome browser, and click the Extensions icon.
2. From the Extensions menu, click ScreenCastify - Screen Video Recorder.
3. When the ScreenCastify extension menu loads, click the Record button.
4. Click Application Window.
5. Select the Iron Blade: Medieval Legends RPG application Window, and click Share.
6. Record 5 minutes of the tutorial gameplay without interacting with the game or advancing the tutorial options. When the recording completes, reopen the Chrome ScreenCastify extension.
7. Click to expand the Download options.
8. Click Export as MP4.
9. Check Convert to fixed frame rate, and leave the default value of 30.
10. Simultaneously start the timer and click Export.
11. When the export dialog completes, stop the timer.

Lexis Audio Editor

Opening an audio file

1. From the app shelf, launch Lexis Audio Editor.
2. Click Open.
3. Navigate to the device's download folder, and select the test audio file.
4. Simultaneously start the timer and click Open.
5. When the audio file has fully loaded, stop the timer.

Exporting an audio file

1. With the test audio file loaded, click Save.
2. From the Save menu, enter a file name. Simultaneously start the timer and click Save.
3. When saving completes, stop the timer.

Scenario three

Connect each device to a four-way Google Meet video meeting before timing the following tasks.

Google Photos

Creating a new photo animation

1. Using the Chrome browser, navigate to photos.google.com.
2. Select 10 images from the test collection, and click the Add to or create new button.
3. Simultaneously start the timer and click Animation.
4. When the Animation preview playback begins, stop the timer.

Loading a photo animation

1. From the app shelf, reopen Google Meet.
2. Open the chat box.
3. Simultaneously start the timer and click the link to the photo animation from chat.
4. When the Chrome browser launches and the photo animation playback begins, stop the timer.

Creating a new photo collage

1. Return to photos.google.com.
2. Select nine photos from the test collection.
3. Click the Add to or create new button.
 - a. Simultaneously start the timer and click Collage.
 - b. When the collage preview fully loads, stop the timer.

Adding a photo collage to New Shared Album

1. From the photo collage editor, click the menu button in the top right.
2. Click Add to album.
3. Simultaneously start the timer and click New Album.
4. When the Edit album page fully loads, stop the timer.

Applying an auto filter to a photo collage

1. Return to photos.google.com.
2. Click to open the test photo collage.
3. Click the Edit icon from the menu.
4. Click to select the Auto color filter preset.
5. Simultaneously start the timer and click Done.
6. When the editing image refreshes, stop the timer.

Opening a shared Google Photos album

1. From the app shelf, reopen Google Meet.
2. Open the chat box.
3. Simultaneously start the timer and click the link to the shared Google Photo album.
4. When the Chrome browser launches and the photo album fully loads, stop the timer.

Scenario #4

Krita

Launching the app

1. Simultaneously start the timer and launch Krita from the shelf.
2. When the app fully loads, stop the timer.

Opening a high-resolution photo

1. From the Krita homescreen, click Open File.
2. Click to select the test photo.
3. Simultaneously start the timer and click Open.
4. When the image fully loads, stop the timer.

Unarchiving a video

Unzipping a video from the desktop

1. Launch the Files app from the shelf.
2. Navigate to the test archive location.
3. Double-click to open the test archive using the default system viewer.
4. Select the contents of the test archive, and click and drag the contents to an empty folder.
5. Simultaneously start the timer and un-click the dragged content.
6. When the copying files dialog completes, stop the timer.

Soundtrap

Merging audio tracks

1. From the app shelf, launch the Soundtrap app.
2. From the template selection screen, click Dubstep DEMO.
3. From the horizontal drop-down menu, click Settings, and click Merge Tracks...
4. Select all of the instrument tracks.
5. Simultaneously start the timer and click Merge.
6. When merging completes, stop the timer.

WeVideo

Exporting a video

1. From the app shelf, launch the WeVideo app.
2. Click the green plus icon.
3. Delete the six-second title text.
4. Click the blue plus icon.
5. Click Gallery.
6. From the folder browser, select the test footage, and click the green checkmark icon.
7. Click Gallery again.
8. From the folder browser, select the test audio, and click the green checkmark icon.
9. Click the paper airplane icon.
10. Simultaneously start the timer and click Save with watermark.
11. When the video fully renders, stop the timer.

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