

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)

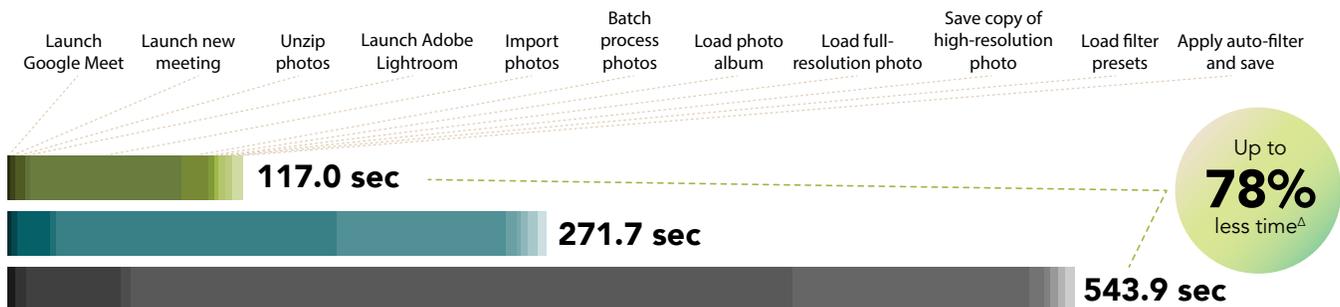


Figure 1: Time (in seconds) to complete a series of tasks for editing photos while video chatting. Less time is better. Source: Principled Technologies.

- Chromebook with a 10th generation Intel 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

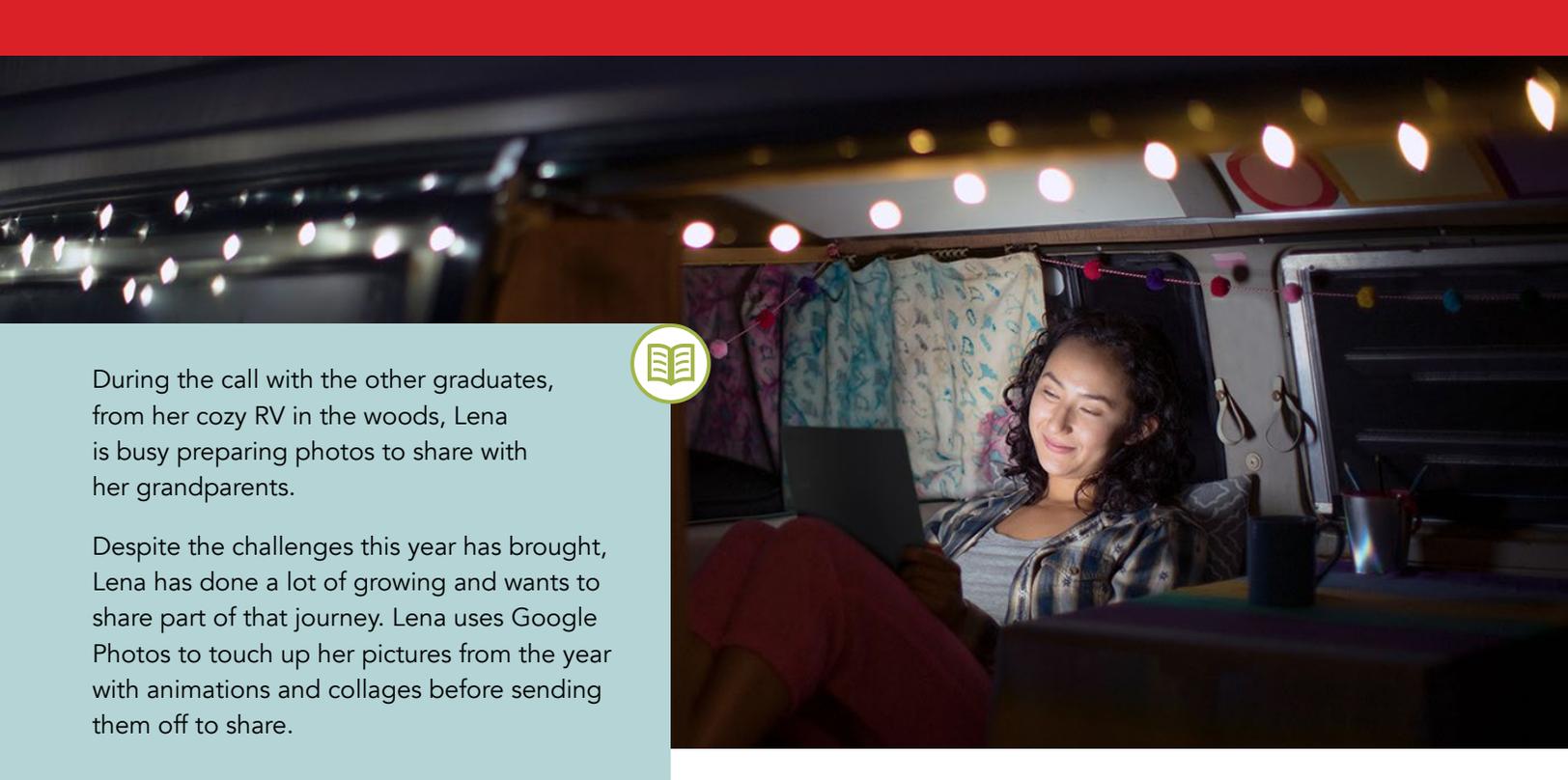
KineMaster

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)

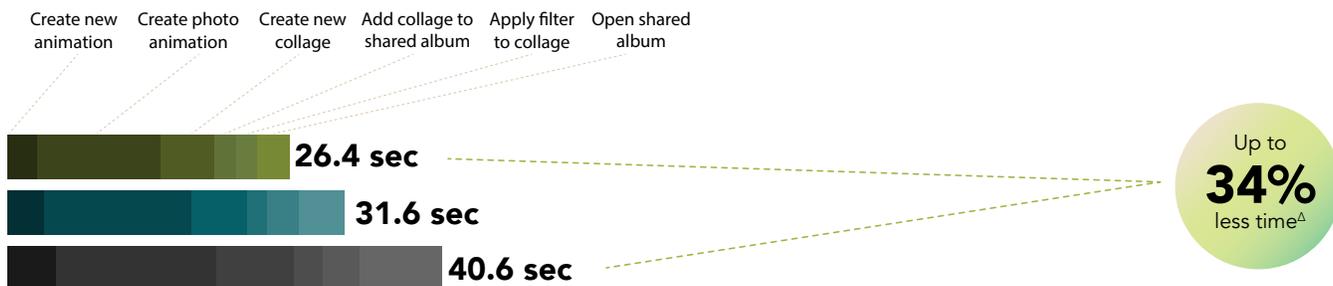


Figure 3: Time (in seconds) to complete a series of tasks for editing and sharing photos in Google Photos while simultaneously video chatting. Less time is better. Source: Principled Technologies.

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

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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)

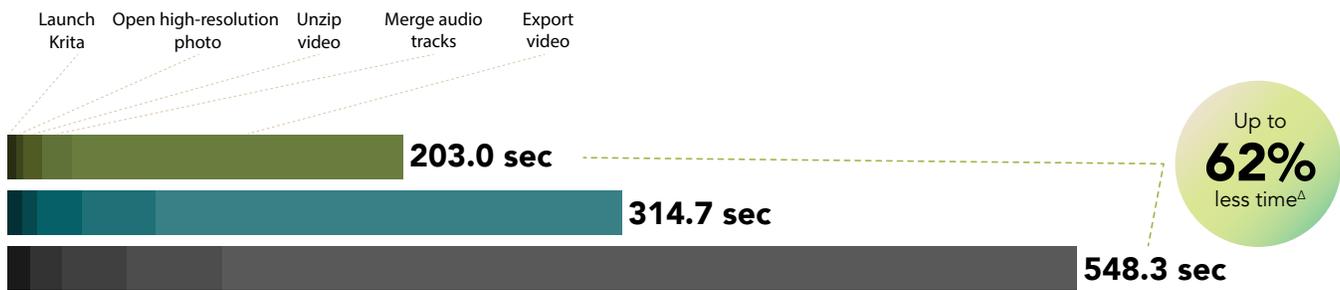


Figure 4: Time (in seconds) to complete a series of tasks for creating and exporting videos. Less time is better. Source: Principled Technologies.

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

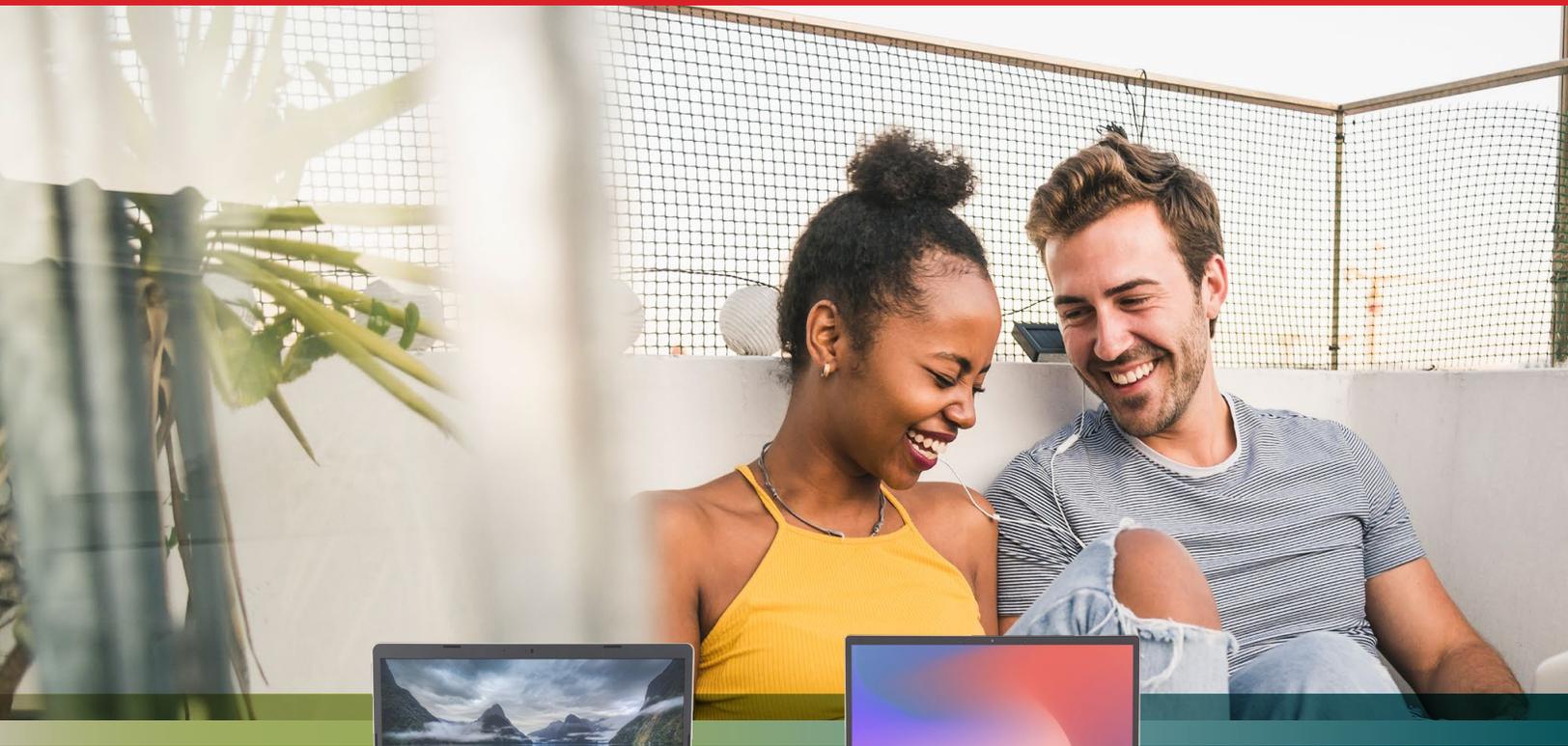
WeVideo

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

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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>.

Read the science behind this report at <http://facts.pt/7gh28zf> ►



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