



Three Chromebooks™ powered by an Intel® Core™ i3-10110U processor, an Intel Core i5-10210U processor, and an Intel Core i7-10510U processor<sup>†‡</sup>



Intel Celeron® N4020 processor-powered Chromebook<sup>†‡</sup>

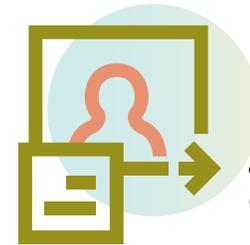
## Empower your business collaborators with a fast Intel Core processor-powered Chromebook

Three Chromebooks powered by Intel Core processors completed common tasks in less time than a Chromebook powered by an Intel Celeron processor

At Principled Technologies, we tested the responsiveness of four Chromebooks while completing tasks in a variety of professional and creative apps. The following processors powered each device:

- Intel Celeron N4020 processor
- Intel Core i3-10110U processor
- Intel Core i5-10210U processor
- Intel Core i7-10510U processor

In our tests, the devices powered by Intel Core processors completed the tasks in less time than the device powered by the Intel Celeron N4020 processor. Work is a bit different during the pandemic, but responsive devices can help ameliorate some of the challenges of working from home by providing a fast user experience.



Up to **36% less time** opening & editing a shared document while multi-tasking<sup>†‡</sup>



Up to **66% less time** editing photo & video<sup>†‡</sup>



Up to **49% less time** collaborating on a presentation<sup>†‡</sup>

<sup>†</sup>Three Acer Chromebook Spin 713 devices (powered by an Intel Core i3-10110U processor, an Intel Core i5-10210U processor, and an Intel Core i7-10510U processor) compared to an Acer Chromebook 315 powered by an Intel Celeron N4020 processor.

<sup>‡</sup>See [the science behind this report](#) for detailed system configurations and benchmark results.

In this report, text in the **light blue 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 used common tasks in a variety of creative and productivity apps to test the responsiveness of four Intel processor-powered Chromebooks. We grouped related tasks together to compare performance over multiple tasks. For brevity's sake, the majority of this report focuses on the overall timing of these task groups rather than the specific timings for each task. If you'd like a more detailed look at the results for each Chromebook, see [the Science behind this report](#).

Note that during all of our tests on a Chromebook, that system was connected to a Google Meet video chat with five total participants to reflect that people routinely perform tasks during video chat sessions. We included launching Google Meet and starting this meeting in the first group of tasks. In subsequent task groups, we excluded the meeting timings, assuming that the hypothetical user would already be part of a meeting.



<sup>A</sup>See [the science behind this report](#) for detailed system configurations and benchmark results.



From her sunny window side perch, Brooke Hockaday signs into her Intel Core i7 processor-powered Chromebook and joins her morning's big meeting. The Galemeadow Real Estate team is meeting to review a contract for a new and exciting project: The owner of a downtown estate is finally selling their home, which the firm sees as a huge business opportunity. These days, much of the firm's work takes place over video conferencing. Their Intel Core processor-powered Chromebooks enable them to easily host meetings that facilitate creative and administrative processes while keeping their community safe.

## Save time handling documents during meetings

In this scenario, we tested a variety of general tasks an office worker might need to do as part of their daily workload. In our hands-on tests, the Intel Core processor-powered Chromebooks performed better than the Intel Celeron N4020 processor-powered Chromebook. For example, when viewing a print preview of a PDF:

- The Intel Celeron N4020 processor-powered Chromebook **required 35.9 seconds**
- The Intel Core i3 processor-powered Chromebook **saved 10.5 seconds**
- The Intel Core i5 processor-powered Chromebook **saved 8.7 seconds**
- The Intel Core i7 processor-powered Chromebook **saved 10.7 seconds**

Remember that for each of these scenarios, the Chromebook we tested was also running a five-participant video call, representing a more real-world use case than simply timing each task in isolation.

## Save up to 29 seconds opening and editing a shared document while multi-tasking with Google Meet, Google Drive, and Google Docs

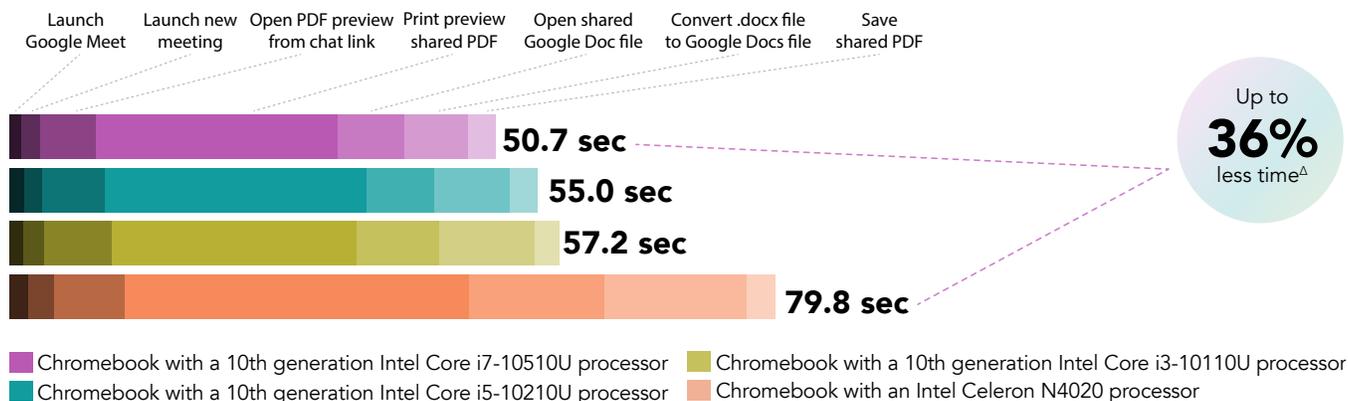


Figure 1: Time (in seconds) to complete a series of tasks while also engaging in a five-way video chat session in Google Meet. Less time is better. Source: Principled Technologies.

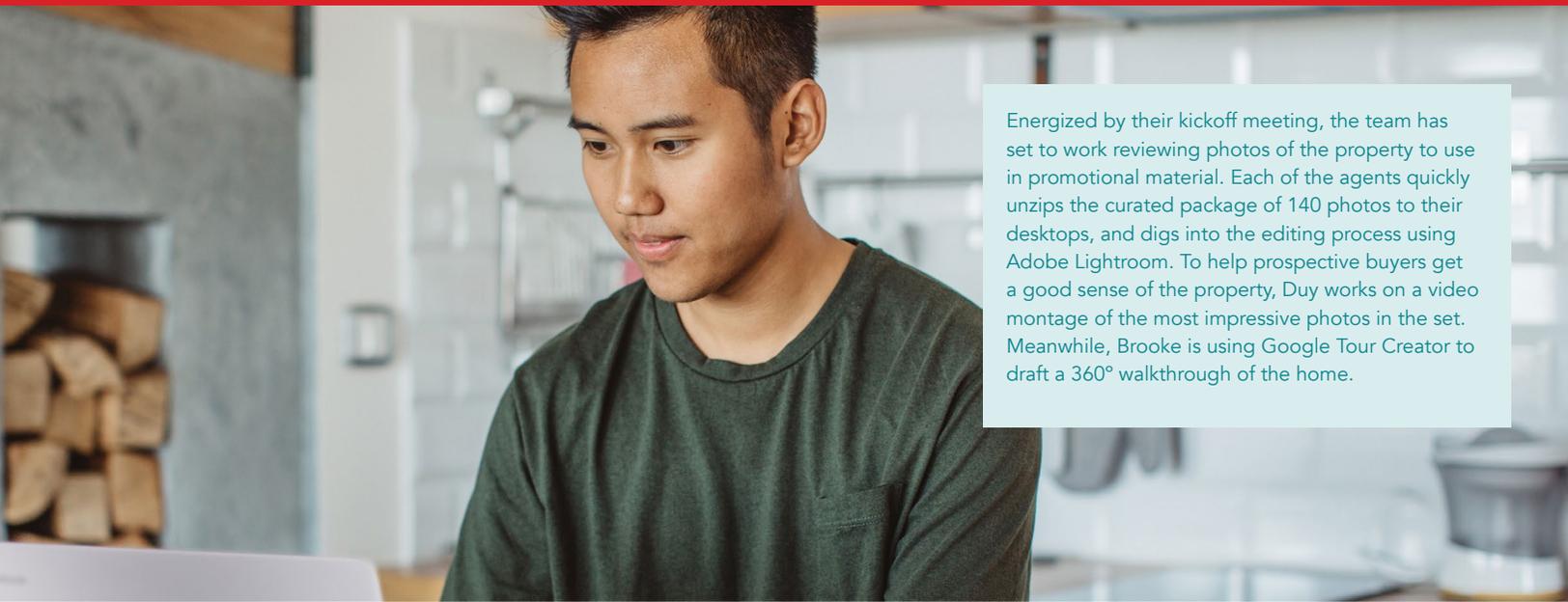
### Google Meet

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.<sup>1</sup>

### Google Workspace

In October 2020, Google rebranded its G Suite app offerings as Google Workspace—but you'll still get the same productivity and collaboration tools you've come to rely on over the years, including Google Docs, Google Slides, Google Meet, Google Drive, and more.<sup>2</sup>

<sup>A</sup>See [the science behind this report](#) for detailed system configurations and benchmark results.



Energized by their kickoff meeting, the team has set to work reviewing photos of the property to use in promotional material. Each of the agents quickly unzips the curated package of 140 photos to their desktops, and digs into the editing process using Adobe Lightroom. To help prospective buyers get a good sense of the property, Duy works on a video montage of the most impressive photos in the set. Meanwhile, Brooke is using Google Tour Creator to draft a 360° walkthrough of the home.

## Save time on photo editing and video creation

This scenario focused on the work a creative professional might have to do on a day to day basis. A notable result from this scenario is importing a set of 140 photos into Adobe Lightroom:

- The Intel Celeron N4020 processor-powered Chromebook **required 6.0 minutes**
- The Intel Core i3 processor-powered Chromebook **saved 3.1 minutes**
- The Intel Core i5 processor-powered Chromebook **saved 3.6 minutes**
- The Intel Core i7 processor-powered Chromebook **saved 3.7 minutes**

## Save up to 15 minutes editing photo and video

with Google System, Adobe Lightroom, Kinemaster, and Google Tour Creator

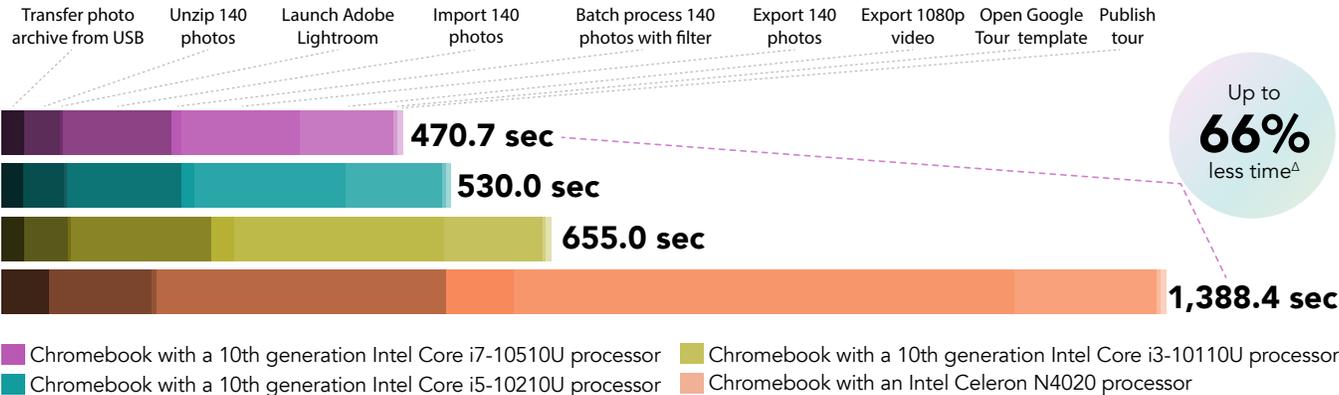


Figure 2: Time (in seconds) to complete a series of tasks while also engaging in a five-way video chat session in Google Meet. Less time is better. Source: Principled Technologies.

### 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.<sup>3</sup>

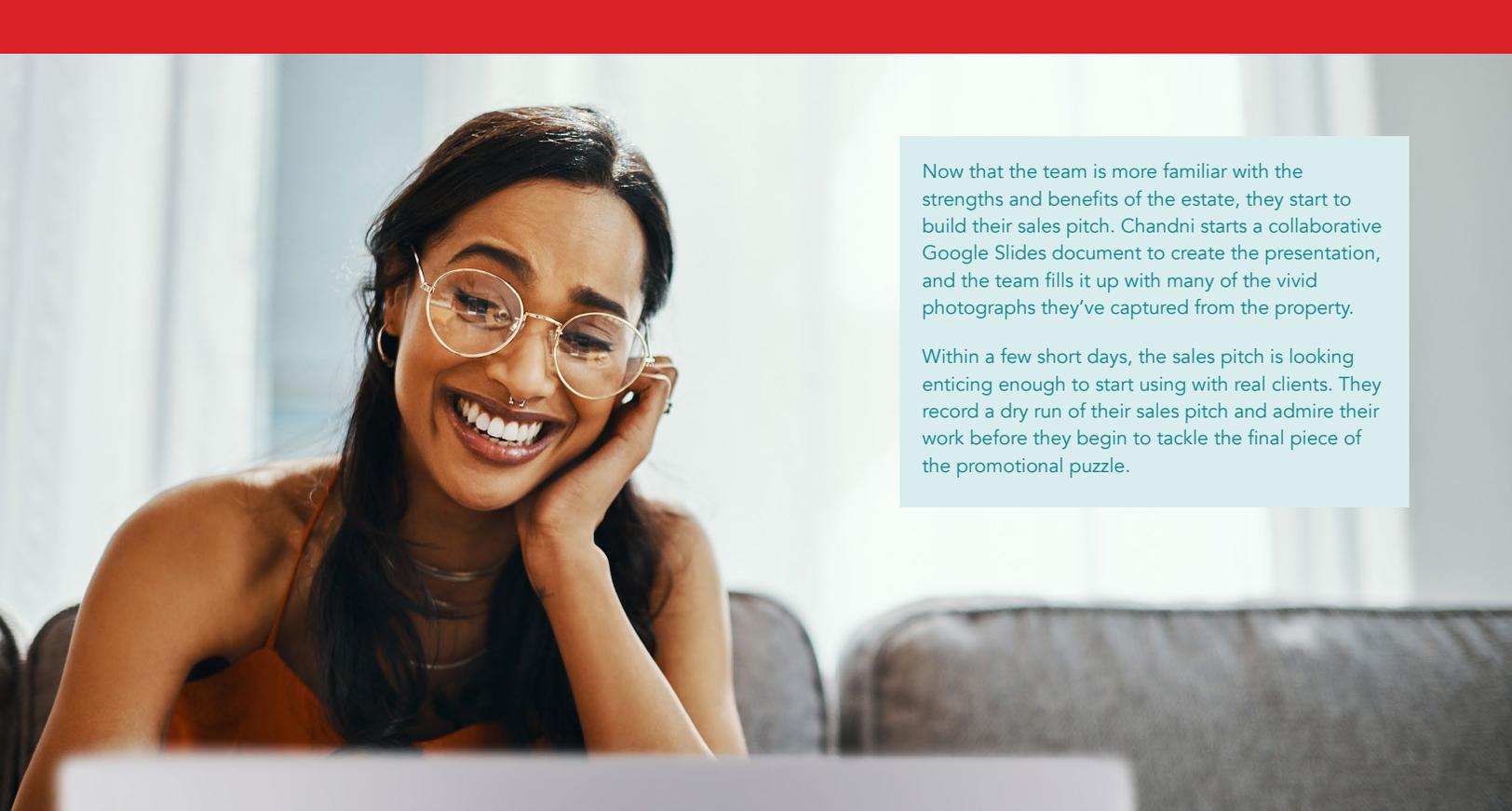
### Kinemaster

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.<sup>4</sup>

### Google Tour Creator

Part of Google's set of AR and VR offerings, Tour Creator enables you to implement 360° photos, highlight points of interest, overlay images, and more.<sup>5</sup>

<sup>A</sup>See [the science behind this report](#) for detailed system configurations and benchmark results.



Now that the team is more familiar with the strengths and benefits of the estate, they start to build their sales pitch. Chandni starts a collaborative Google Slides document to create the presentation, and the team fills it up with many of the vivid photographs they've captured from the property.

Within a few short days, the sales pitch is looking enticing enough to start using with real clients. They record a dry run of their sales pitch and admire their work before they begin to tackle the final piece of the promotional puzzle.

## Save time while collaborating on presentations

We designed this scenario to showcase collaborative performance. While we saw strong performance from all four Chromebooks during these tests, the Chromebooks powered by Intel Core i3, Core i5, and Core i7 processors completed tasks in less time than the Intel Celeron processor-powered Chromebook.

### Save up to 24 seconds collaborating on a presentation with Google Slides and Screencastify

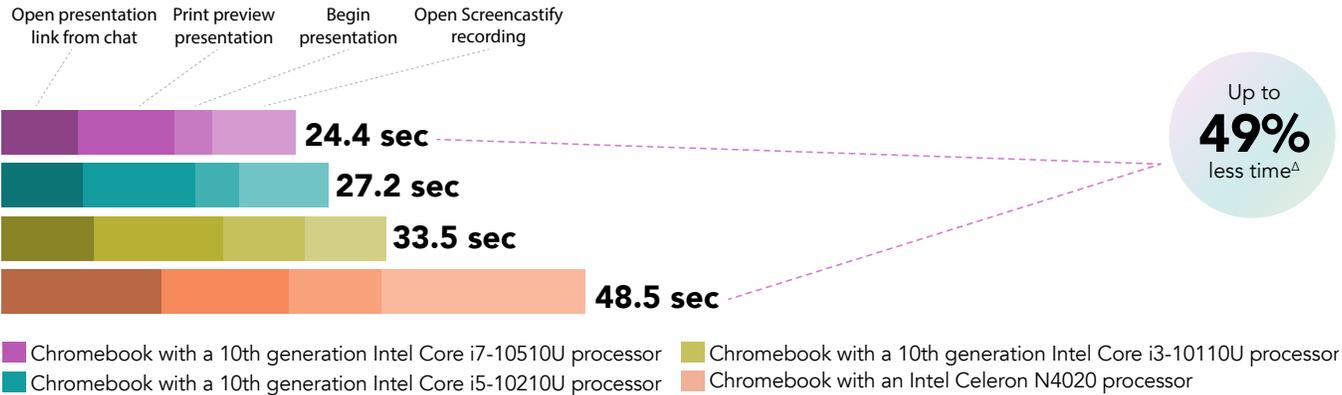


Figure 3: Time (in seconds) to complete a series of tasks while also engaging in a five-way video chat session in Google Meet. Less time is better. Source: Principled Technologies.

#### 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.<sup>6</sup>

<sup>Δ</sup>See [the science behind this report](#) for detailed system configurations and benchmark results.



## Conclusion

In our tests, Chromebooks powered by Intel Core i3, Core i5, and Core i7 processors completed tasks in various professional and creative apps faster than a Chromebook powered by an Intel Celeron N4020 processor. The Chromebooks achieved their respective timings while connected to a five-way Google Meet video call, representing a true to life use case. The Intel Core i7 processor-powered Chromebook generally had the best results of the pack, though the Intel Core i3 and Core i5 processor-powered Chromebooks both consistently outperformed the Intel Celeron N4020 processor-powered Chromebook, which itself may still be suitable for professional needs.

Because many of last year's office workers are now working from home, it's important for businesses to invest in technology that enables their employees to stay connected while carrying out day to day tasks. To that end, an Intel Core processor-powered Chromebook may be a strong candidate for your next set of employee devices.

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

- 1 Javier Soltero, "Google Meet premium video meetings—free for everyone," accessed November 16, 2020, <https://www.blog.google/products/meet/bringing-google-meet-to-more-people/>.
- 2 "Introducing Google Workspaces and a new set of offerings to better meet your needs," accessed November 16, 2020, <https://workspaceupdates.googleblog.com/2020/10/introducing-google-workspace.html>.
- 3 "Adobe Lightroom," accessed November 16, 2020, [https://play.google.com/store/apps/details?id=com.adobe.lrmobile&hl=en\\_US](https://play.google.com/store/apps/details?id=com.adobe.lrmobile&hl=en_US).
- 4 "KineMaster - Video Editor, Video Maker," accessed November 16, 2020, [https://play.google.com/store/apps/details?id=com.nexstreaming.app.kinemasterfree&hl=en\\_US](https://play.google.com/store/apps/details?id=com.nexstreaming.app.kinemasterfree&hl=en_US).
- 5 "Tour Creator," accessed November 16, 2020, <https://avvr.google.com/tourcreator/>.
- 6 "Screencastify | The #1 Screen Recorder for Chrome," accessed November 16, 2020, <https://screencastify.com>.

Read the science behind this report at <http://facts.pt/tjyt1w1> ▶



Facts matter.®

Principled Technologies is a registered trademark of Principled Technologies, Inc. All other product names are the trademarks of their respective owners. For additional information, review the science behind this report.

This project was commissioned by Intel.