Samsung®
Chromebook™ Pro with an
Intel® Core™ m3 processor

Export a video in 7.3 fewer minutes
in WeVideo Video Editor

Post a video in 1.1 fewer minutes
in Instagram

Open a spreadsheet in 10.2 fewer seconds
in Google Sheets™

Spend less time waiting on your Chromebook when using your favorite Android apps

An Intel Core m3 processor-powered Chromebook enabled apps to run faster than a Chromebook based on an Arm Rockchip processor did

Whether it's for leisure or for your extraprofessional activities, no one likes using a sluggish computer. Waiting is frustrating, and slow-behaving apps can turn fun activities into chores. Fortunately, Chromebooks with certain processors can enable Android™ apps to run faster, leading to less idle waiting on your end.

At Principled Technologies, we tested several popular Android apps on two Chromebooks: a Samsung Chromebook Pro powered by an Intel Core m3 processor, and a Samsung Chromebook Plus with an Arm® Rockchip processor. We compared how long it took each Chromebook to complete common tasks, and found that the Intel Core m3 processor-powered device was consistently faster. That time savings grows with repetition—so two seconds here and there could save you hours in the long run.

With the time saved using the Intel Core m3 processor-based Samsung Chromebook Pro, you could make longer strides in your pet projects, or get more me-time in before work. From video editing to collaboration tools, the Intel processor-powered Chromebook responded faster in our tests, translating to a better overall experience for the user—you.

Less time waiting while video editing and rendering

Editing video can often be a time-consuming process. Whether you're sorting through vacation footage or putting together a volunteer project, Chromebooks now offer Android apps to help you out. When it came to the processor-demanding work of rendering videos, the Intel Core m3 processor-powered Chromebook saved us time, every time. For example, encoding a single HD video in PowerDirector with the Intel Core m3 processor-powered device saved nearly seven minutes. Since you'll often need to render many versions of a video as you make adjustments, the time you save grows with each export.

Encoding HD video
in PowerDirector Video Editor

Time (sec)
lower is better

76.7 s — **84%** less time

491.9 s
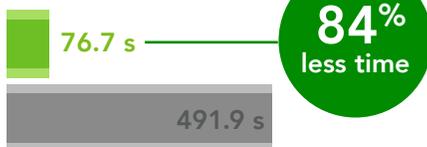
Encoding SD video
in PowerDirector Video Editor

Time (sec)
lower is better

30.2 s — **76%** less time

131.1 s

Exporting video
in Lomotif – Music Video Editor

Time (sec)
lower is better

9.1 s — **74%** less time

37.4 s

■ Intel Core m3 processor
(Samsung Chromebook Pro)

■ Arm Rockchip processor
(Samsung Chromebook Plus)

When you've finished your creation and need to share it with the world, the Intel Core m3 processor-powered Chromebook has you covered too. Saving a video in WeVideo took over seven fewer minutes with the Intel Core m3 processor-powered device, and posting a video to an Instagram feed was nearly a minute faster. As a content creator, your time is important. The Intel Core m3 processor-powered Chromebook we tested could enable you to get your creations in front of your audience faster.

Saving video for free
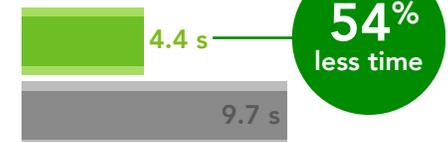in Video Editor (WeVideo Inc.)

Time (sec)
lower is better

147.8 s — **74%** less time

588.6 s

Posting video to feed
in Instagram

Time (sec)
lower is better

63.8 s — **48%** less time

122.8 s

Creating 720p 30FPS movie from 90 frames
in FlipaClip – Cartoon Animation
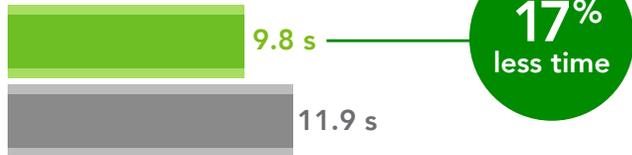
Time (sec)
lower is better

4.4 s — **54%** less time

9.7 s

■ Intel Core m3 processor
(Samsung Chromebook Pro)

■ Arm Rockchip processor
(Samsung Chromebook Plus)

Saving image to Gallery (highest quality)
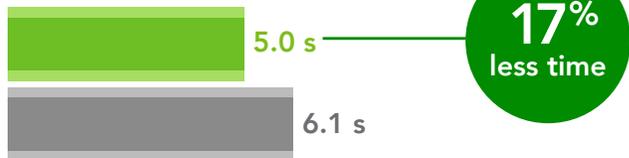in Adobe Photoshop® Lightroom

Time (sec) – *lower is better*

9.8 s

11.9 s

17% less time

Loading crop menu
in Adobe Photoshop Mix

Time (sec) – *lower is better*

2.8 s

4.7 s

41% less time

Creating collage from 10 images
in Pixlr® – Free Photo Editor

Time (sec) – *lower is better*

5.0 s

6.1 s

17% less time

Intel Core m3 processor
(Samsung Chromebook Pro)

Arm Rockchip processor
(Samsung Chromebook Plus)

Faster photo editing

Smartphones with decent-quality cameras are now ubiquitous. Combined with the wide variety of photo-editing Android apps on the Google Play™ store, technology is empowering anyone to cultivate their inner photographer. But editing pics on your phone's limited screen real estate can sometimes be a hassle. When you're tired of squinting, you can continue to edit your photo masterpieces in greater detail by switching to your Chromebooks with the same Android apps you use on your phone. The Intel Core m3 processor-powered Chromebook can deliver a better experience when editing photos—and the more you use it, the more time you save over the Arm alternative.

Get to work faster in G Suite

Whether you need to plan a personal budget, write your next novel, or put together a travel itinerary, the G Suite apps can help. And with an Intel Core m3 processor-powered Chromebook such as the Samsung Chromebook Pro, you could get to your projects even faster. With a Chromebook that uses the Intel Core m3 processor, you could spend less time using these apps to plan your life, and spend more time living it.

Conclusion

With support for Android apps in Google Play, Chromebooks now have the power to play an even bigger role in your life than they did before. Choosing the right Chromebook can give you a better experience, allowing you to wait less while doing the things you love. In our hands-on tests, a Chromebook powered by an Intel Core m3 processor enabled us to complete tasks in Android apps faster than a Chromebook with an Arm Rockchip processor did. From video and photo editing to productivity apps, an Intel Core m3 processor-based Chromebook could enable you to do more, faster. For each task we tested, the total savings represented minutes and seconds. For tasks you do many times each day, the savings will quickly add up to more time for you to play, rest, and enjoy life.
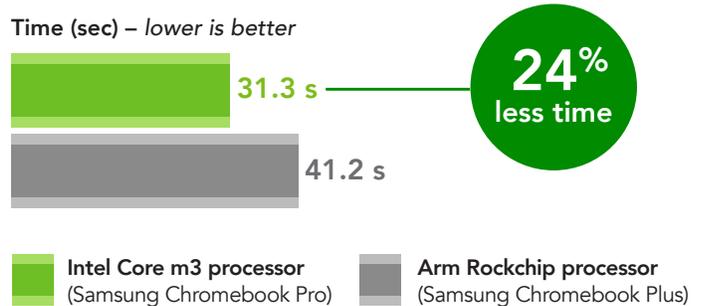
Opening Google Docs document
in Google Drive™
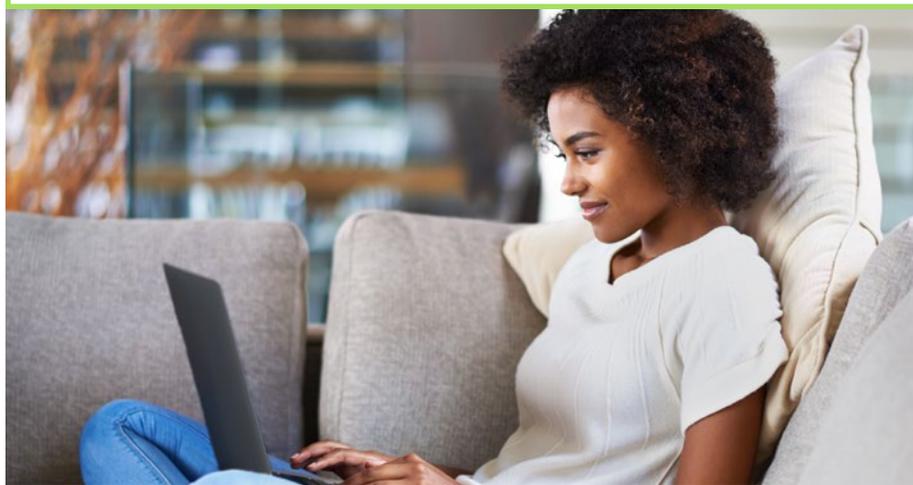
Time (sec) – *lower is better*

6.2 s

10.2 s

39% less time

Opening Google Sheets spreadsheet
in Google Drive

Time (sec) – *lower is better*

31.3 s

41.2 s

24% less time

Intel Core m3 processor
(Samsung Chromebook Pro)

Arm Rockchip processor
(Samsung Chromebook Plus)

On June 12, 2017, we finalized the hardware and software configurations we tested. Updates for current and recently released hardware and software appear often, so unavoidably these configurations may not represent the latest versions available when this report appears. For older systems, we chose configurations representative of typical purchases of those systems. We concluded hands-on testing on June 13, 2017.

Appendix A: System configuration information

System	Samsung Chromebook Pro	Samsung Chromebook Plus
Processor	Intel Core m3-6Y30	OP1 (Rockchip RK3399-C)
Processor freq (GHz)	0.9-2.2	2
Processor cores	2	2-6 (big.LITTLE configuration)
Memory (GB)	4	4
Storage (GB)	32	32
Battery type	Li-Ion	Li-Ion
Battery capacity (Wh)	51	39
Display	12.3" 2,400x1,600	12.3" 2,400x1,600
Wireless	802.11 AC	802.11 AC
Bluetooth	4.0	4.0
USB ports	2x USB-C	2x USB-C
System weight (lbs.)	2.38	2.38
OS (version)	60.0.3112.20 dev (64-bit)	60.0.3112.26 dev
Build/firmware	Caroline.7820.286.0	Kevin.8785.178.0

Appendix B: How we tested

Creating the background workload

To simulate typical Chromebook use, we ran a combination of news, email, chat, document viewing, music, 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, and select Open a specific page or set of pages.
3. Select Open a specific page or set of pages, insert the following URLs, and click OK.

   - forbes.com
   - markets.ft.com/data
   - arstechnica.com
   - mail.google.com
   - slack.com
   - drive.google.com
   - docs.google.com
   - youtube.com/feed/music
   - sheets.google.com
   - twitter.com
   - facebook.com

4. Restart the Chromebook. Before testing, navigate through each tab to ensure that both devices have fully loaded all the same content.

Testing each application

The applications we tester

PowerDirector Video Editor App: 4K, Slow Mo & More

Encoding an HD video

1. Install PowerDirector from the Google Play Store, and pin the app to the shelf.
2. Launch the app from the shelf, and select Allow to enable access to device media storage.
3. Click the New Project icon, and enter a name for the test project.
4. Click the Download folder, and click the test footage to insert the footage onto the timeline.
5. Press the layers icon, and select the text icon to insert a title into the beginning of the clip. Name the title "Test HD Video."
6. Click the Export icon.
7. Click More Output Options.
8. With HD video resolution selected, start the timer and click Next.
9. When the video share screen appears, stop the timer.

Encoding an SD video

1. From the shelf, click the PowerDirector Video Editor icon to launch the app.
2. Load the saved test project.
3. Click the Export icon.
4. Click More Output Options.
5. With SD video resolution selected, start the timer and click Next.
6. When the video share screen appears, stop the timer.

Instagram

Posting a video to feed

1. Install Instagram from the Google Play Store, and pin the app to the shelf.
2. Launch the app from the shelf, and click Sign up with email or phone number.
3. Click the Email tab, and enter the testing account's email address.
4. Enter a name, password, and click Next.
5. Enter a user name, and click Next.
6. Click Skip to skip connecting to a Facebook account.
7. Click Skip again to confirm.

8. Click Skip to skip adding a profile photo.
9. Click the + icon.
10. Click Allow to enable access to device media storage.
11. From the Gallery tab, click the test video footage.
12. Click Next.
13. At the filter and trim screen, click Next.
14. Start the timer, and click Share.
15. When video playback begins on the test user's feed, stop the timer.

Video Editor (WeVideo Inc.)

Saving a video for free

1. Install Video Editor from the Google Play Store, and pin the app to the shelf.
2. Launch the app from the shelf, and click Allow to enable device media storage access.
3. Click the + icon.
4. Click Gallery.
5. Click the Download folder.
6. Select the test footage, and click the green checkmark icon.
7. From the timeline editor, click the Title box.
8. Enter a title ("Test Video"), and click the checkmark icon.
9. Click the send icon.
10. Start the timer, and click Save with Watermark.
11. When the share dialog appears, stop the timer.

Lomotif – Music Video Editor

Exporting a video

1. Install Lomotif from the Google Play Store, and pin the app to the shelf. Launch the app from the shelf, and click Start now!
2. Click Allow to enable access to device media storage.
3. Click the Download folder.
4. Select the test footage, and click the Next arrow.
5. Select the first background music (Despacito (feat. Justin Bieber) [Remix], Luis Fonsi & Daddy Yankee), and click the Next arrow.
6. Click the export icon.
7. Start the timer, and click Yes to confirm the video export.
8. When the video export completes, stop the timer.

FlipaClip – Cartoon Animation

Creating a 720p 30 FPS movie from 90 frames

1. Install FlipaClip from the Google Play Store, and pin the app to the shelf.
2. Launch the app from the shelf.
3. Select your age, and click I Accept to accept the license agreement.
4. Select the sample project, and click Edit.
5. Click the FPS field, and scroll to change Frames Per Second to 30. Click the check mark.
6. Click Save Changes.
7. Click the project again to open it.
8. From the timeline, press the plus icon until a total of 90 frames are present in the clip.
9. For every 10th frame, select the frame, and click the Text icon to insert a title. Type `Test sequence [1-10]`
10. Click the dropdown menu icon, and select Make movie.
11. Start the timer, and click Make Movie.
12. When the export finishes, stop the timer.

Adobe Photoshop Lightroom

Saving an image to Gallery (highest quality)

1. Install Adobe Photoshop Lightroom from the Google Play Store, and pin the app to the shelf.
2. Launch the app from the shelf, and click Get Started.
3. Click Add Your Photos, and click Allow to let Lightroom access photos on the device.
4. Select the test photo, and click Add.
5. When the photo is in the default collection, click the Photo.

6. Open the photo menu.
7. Click Save to Gallery, and select Highest Available Quality.
8. Start the timer, and click OK.
9. When the completed export dialog appears, stop the timer.

Adobe Photoshop Mix

Loading the crop menu
1. Install Adobe Photoshop Mix from the Google Play Store, and pin the app to the shelf.
2. Launch the app from the shelf, and select Get a free Adobe ID.
3. Fill in the required details for an account, and click Sign Up.
4. Click OK to acknowledge Automatic Backup.
5. Click the first example project (Clock in the sky).
6. Start the timer, and click the Crop icon.
7. When the crop menu fully loads, stop the timer.

Pixlr – Free Photo Editor

Creating a collage from 10 images
1. Install Pixlr – Free Photo Editor from the Google Play Store, and pin the app to the shelf.
2. Launch the app from the shelf, and click I Accept to accept the license agreement.
3. Click the collage icon.
4. Click Allow to enable access to device media storage.
5. From the Download folder, select the 10 test images to be made into a collage.
6. Click the done button.
7. At the collage preview screen, click next.
8. At the filter and text screen, click done.
9. At the share screen, click Save Image.
10. With Max (5000 * 5000) resolution selected, start the timer and click OK.
11. When the image save dialog closes, stop the timer.

Google Drive

Opening a Google Docs document
1. Install Google Drive from the Google Play Store, and pin the app to the shelf.
2. Launch the app from the shelf.
3. Start the timer, and click the test Google Docs document from the Files list.
4. When the document fully loads, stop the timer.

Opening a Google Sheets spreadsheet
1. Launch Google Drive from the Shelf.
2. Start the timer, and click the test Google Sheets document from the Files list.
3. When the document fully loads, stop the timer.

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