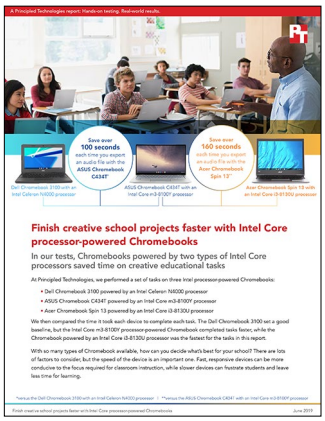

The science behind the report:

Finish creative school projects faster with Intel Core processor-powered Chromebooks

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 Finish creative school projects faster with Intel Core processor-powered Chromebooks.

We concluded our hands-on testing on June 13, 2019. 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 June 3, 2019 or earlier. Unavoidably, these configurations may not represent the latest versions available when this report appears.

Our results: Time to complete tasks in various apps

We present time in seconds below.

Task	Dell Chromebook 3100 with an Intel Celeron N4000 processor	ASUS Chromebook C434T with an Intel Core m3-8100Y processor	Acer Chromebook Spin 13 with an Intel Core i3-8130U processor	Percentage win ASUS Chromebook C434T vs. Dell Chromebook 3100	Percentage win Acer Chromebook Spin 13 vs. ASUS Chromebook C434T
CodeHS					
Create a new program	4.6	3.4	2.5	26%	27%
Lexis Audio Editor					
Export an edited audio file	643.7	542.1	377.4	16%	30%
Open an audio file	45.3	39.4	37.6	13%	5%
Soundtrap					
Create a new project	8.1	6.8	5.6	16%	17%
Lomotif					
Process a video	5.5	4.9	3.8	11%	22%
Export a video	19.8	15.8	10.9	20%	31%
Tinkercad					
Open a model	33.5	22.0	19.9	34%	9%

System configuration information

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

Device configuration information	Dell Chromebook 3100 with an Intel Celeron N4000 processor	ASUS Chromebook C434T with an Intel Core m3-8100Y processor	Acer Chromebook Spin 13 with an Intel Core i3-8130U processor
Operating system			
OS name and version/ build number	Chrome OS 74.0.3729.159	Chrome OS 74.0.3729.159	Chrome OS74.0.3729.159
Build/firmware version	Google_Fleex.11297.29.0	Google_Rammus.11276.16.0	Google_Nami.10775.19.0
Processor			
Vendor and model	Intel Celeron N4000	Intel Core m3-8100Y	Intel Core i3-8130U
Core count (per processor)	2	2	2
Core frequency (GHz)	2.6	3.4	3.4
Miscellaneous			
Memory (GB)	4	4	4
Storage (GB)	16	64	128
Bluetooth	5.0	4.0	4.2
USB	2x USB 3.1 Gen1, 2x USB Type C	1x USB 3.1, 2x USB Type C	2x USB 3.0, 1x USB Type Type C
Battery type	Lithium-Ion	Lithium-Ion	Lithium-Ion
Battery capacity (Wh)	42	48	46
Display size (in)	11.6	14	13.5
Screen resolution	1366 x 768	1920 x 1080	2256 x 1504
System weight (lbs.)	2.85	3.19	3.30

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
   - Markets.ft.com/data
   - 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.

Application testing

Code HS

Creating a new Python program

1. From the Chrome browser, navigate to codehs.com.
2. Sign in with your Google account.
3. Click Sandbox.
4. Under Create New Program, type a name, and click Create Program.
5. Select Python.
6. Simultaneously start the timer and click Create Program.
7. When the project editor fully loads, stop the timer.

Lexis Audio Editor

Opening a 50MB audio file

1. From the Google Play Store, install Lexis Audio Editor, and pin the app to the shelf.
2. Launch the app from the shelf.
3. Click Allow to enable app access to photos, media, and files on the device.
4. Close and reopen the app.
5. Click Open.
6. Navigate to the device's download folder, and select the test audio file.
7. Start the timer, and click Open.
8. Stop the timer when the audio file has fully loaded.

Exporting an audio file

1. From the shelf, launch the app.
2. Click Open.
3. Navigate to the device's download folder, and select the test audio file.
4. Click Save.
5. From the Save menu, enter a file name. Start the timer, and click Save.
6. Stop the timer when saving completes.

Soundtrap

Entering the studio

1. From the Google Play store, install SoundTrap. Pin the app to the shelf.
2. Launch the SoundTrap app from the shelf.
3. Simultaneously start the timer and click Create New Project.
4. When the studio fully loads, stop the timer.

Lomotif

Processing a video

1. From the Google Play Store, install Lomotif, and pin the app to the shelf.
2. Launch the app from the shelf.
3. Click the green plus icon.
4. To enable access to device media storage, select Allow.
5. Select the Downloads folder, and click the test footage.
6. Click the Next arrow.
7. Click the song at the top of the Find Music section.
8. Start the timer, and click the Next arrow.
9. Stop the timer when the video finishes processing.

Exporting a video

1. From the shelf, launch the app.
2. Click the green plus icon.
3. To enable access to device storage, select Allow.
4. Select the Downloads folder, and click the test footage.
5. Click the Next arrow.
6. Click the song at the top of the Find Music section.
7. Click the Next arrow.
8. When the video finishes processing, start the timer, and click the Export icon.
9. Stop the timer when the video finishes exporting.

Tinkercad

Opening the City model

1. From the Chrome browser, navigate to tinkercad.com.
2. Click Gallery.
3. Click the City design.
4. Simultaneously start the timer and click Duplicate and Tinker.
5. When the model fully loads, stop the timer.

Read the report at http://facts.pt/sx83xb6 ▶

This project was commissioned by Intel.

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