



ChromeOS Performance Leadership:

The MediaTek Kompanio Ultra 910 Advantage

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In partnership with:

MEDIATEK

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Introduction

Since its debut in 2009, Google's ChromeOS has been a strong contender in the lower- to mid-range segments of the laptop market, for general consumers and especially the education and small business sectors. For nearly two decades, ChromeOS's source of strength has been lower prices, a simple and uncomplicated UX, and an operating system that shares much of its DNA with Android. ChromeOS devices have however suffered from a chronic lack of good and up-to-date hardware, as x86 CPU manufacturers Intel and AMD have consistently only offered low-end and/or last-gen chips for ChromeOS laptop OEMs to use.

That's changed with MediaTek's Kompanio Ultra 910, the company's latest CPU for ChromeOS devices. This chip features modern Arm Cortex CPU cores, fast

integrated graphics, and a very capable NPU for AI workloads, all fabbed on TSMC's cutting-edge 3nm node.

But don't underestimate MediaTek's first foray into PCs; the Kompanio Ultra 910 looks to be a sizeable leap over the CPUs that are currently used for x86-based Chromebooks, particularly in AI, as the MediaTek processor is the only CPU for ChromeOS that supports many of ChromeOS's new AI features.

In this paper, we'll be demonstrating the performance and power advantages of the Kompanio Ultra 910 versus the latest x86 processors for ChromeOS. Our testing also focuses on real-world usage in the realms of education, business, and consumer software.



Provides **33% longer battery life** during student workload.



Great performance even when unplugged and running **multiple workloads**.



Kompanio Ultra 910 Chromebooks are **up to 28% quieter** than x86 models.



Up to 20% cooler when running content creation workloads.

Test Setup

First among our two Kompanio Ultra 910-equipped Chromebooks is the Acer Chromebook Plus Spin 514. This is a 14-inch laptop with lots of quality features including four USB 3.2 Gen 2 ports, WiFi 7 connectivity, and a fingerprint scanner. It currently retails for \$549 and above depending on the hardware configuration, though it has previously been on sale for \$499.

The other MediaTek-powered device we tested is the Lenovo Chromebook Plus 14. This is also a 14-inch model with a fingerprint scanner and WiFi 7, plus three USB 3.2 Gen 1 ports. It officially retails for \$749, but we've seen it go for as low as \$679.

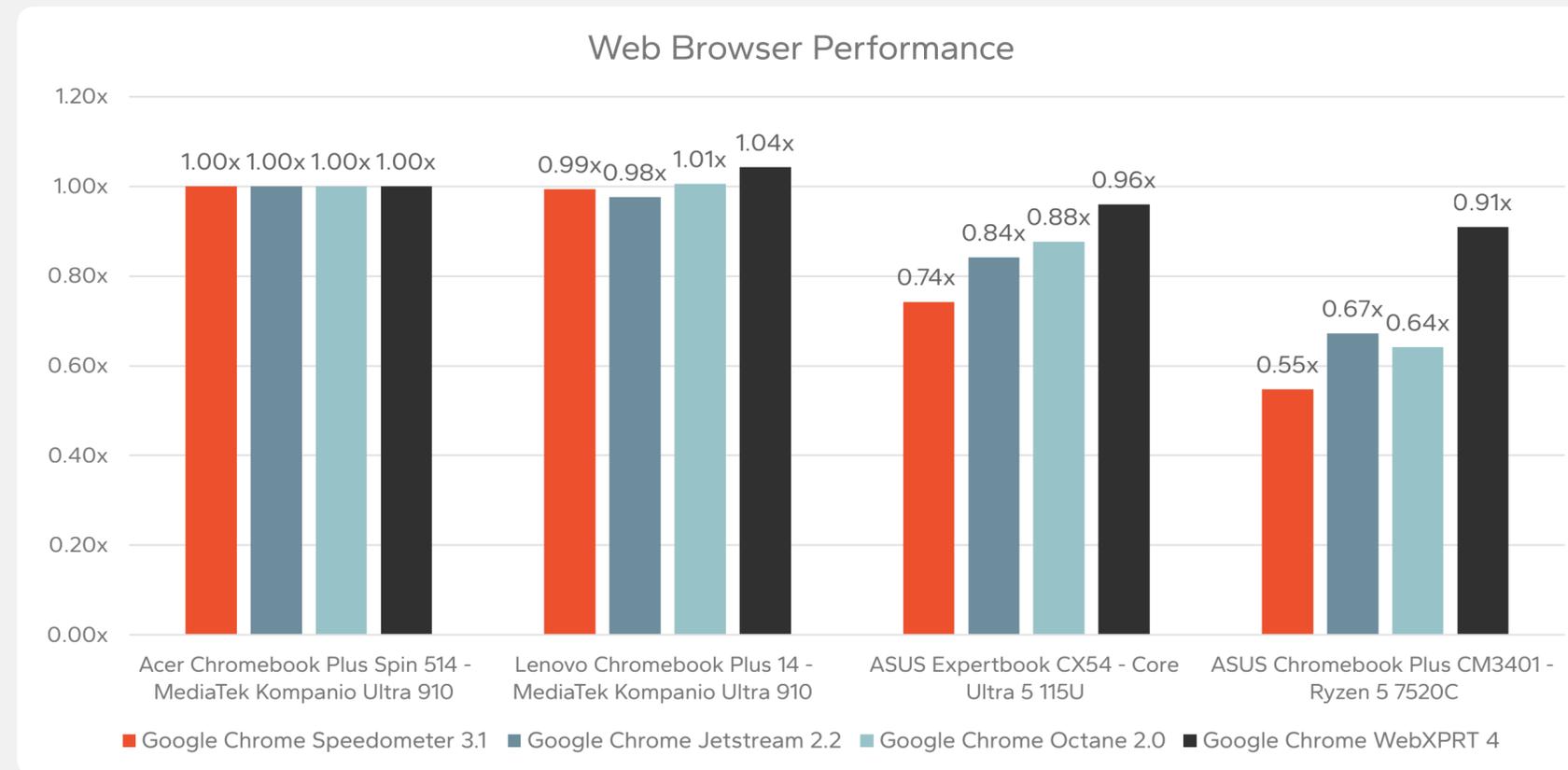
We tested two Chromebooks that use an x86 processor option. Firstly, we have the ASUS Expertbook CX54, yet another 14-inch device, configured with Intel's Core Ultra 5 115U from 2024. This laptop doesn't have a touchscreen and uses WiFi 6E unlike the Kompanio Ultra 910 Chromebooks, but it does have support for Thunderbolt 4. This model goes for \$599 at the time of writing.

Finally is our AMD-powered Chromebook, the ASUS Chromebook Plus CM3401, which uses the Ryzen 5 7520C. While the Kompanio Ultra 910 and Core Ultra 5 115U are based on architectures available within the past couple of years, the Ryzen 5 7520C is significantly older and uses the 2019 Zen 2 architecture for its CPU cores and 2020's RDNA 2 for GPU cores. This ASUS laptop is of course a 14-incher, though being older it only has WiFi 6. It is difficult to find this laptop in stock at the moment, though a variant with the lower-end Ryzen 3 7320C is available for \$499.



Browser Performance

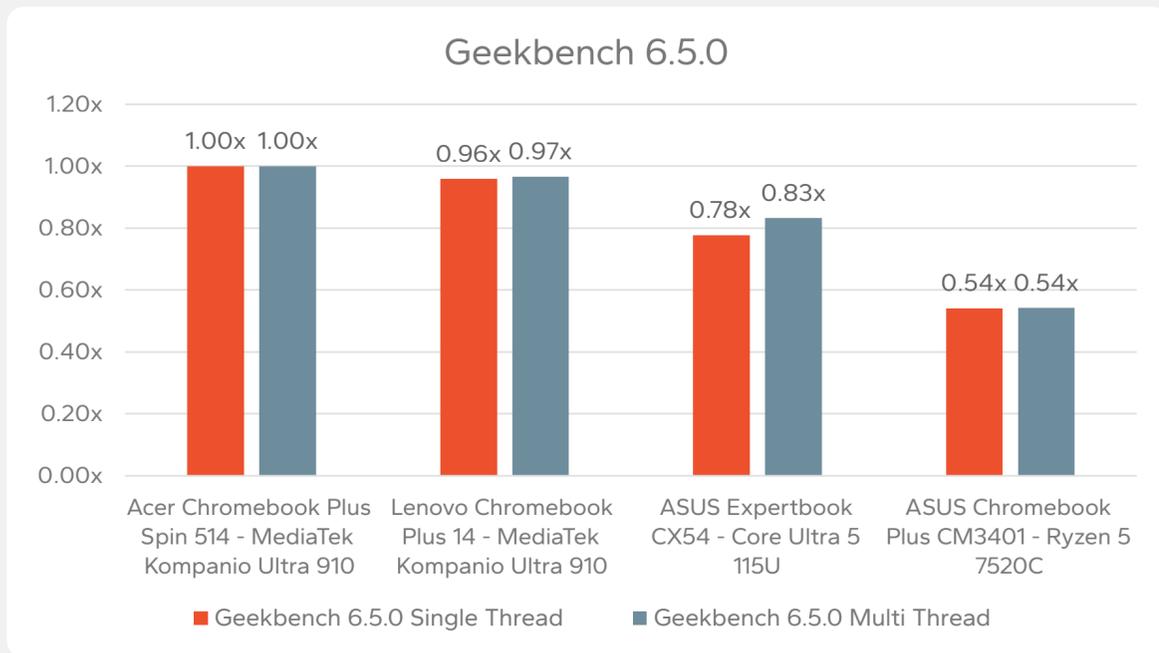
To gauge browser performance, we benchmarked our Chromebooks in Speedometer 3.1, Jetstream 2.2, Octane 2.0, and WebXPRT 4 in an attempt to showcase the capabilities of these systems in the primary interface for most users: utilize the Chrome web browser.



Both Kompanio Ultra 910 Chromebooks were faster than the two x86 Chromebooks across all benchmarks, and held an especially large lead in Speedometer 3.1. The MediaTek chip was up to 35% faster than the Core Ultra 5 115U and up to 83% faster than the Ryzen 5 7520C. Given that Chrome is highly integrated into ChromeOS, this performance advantage is very relevant to the user experience.

CPU Performance

For our first CPU performance benchmark, we tested Geekbench 6.5.0, which is a collection of different workloads that simulate various functions commonly used in modern PC computing. The overall score is a composite of the performance in each individual workload.



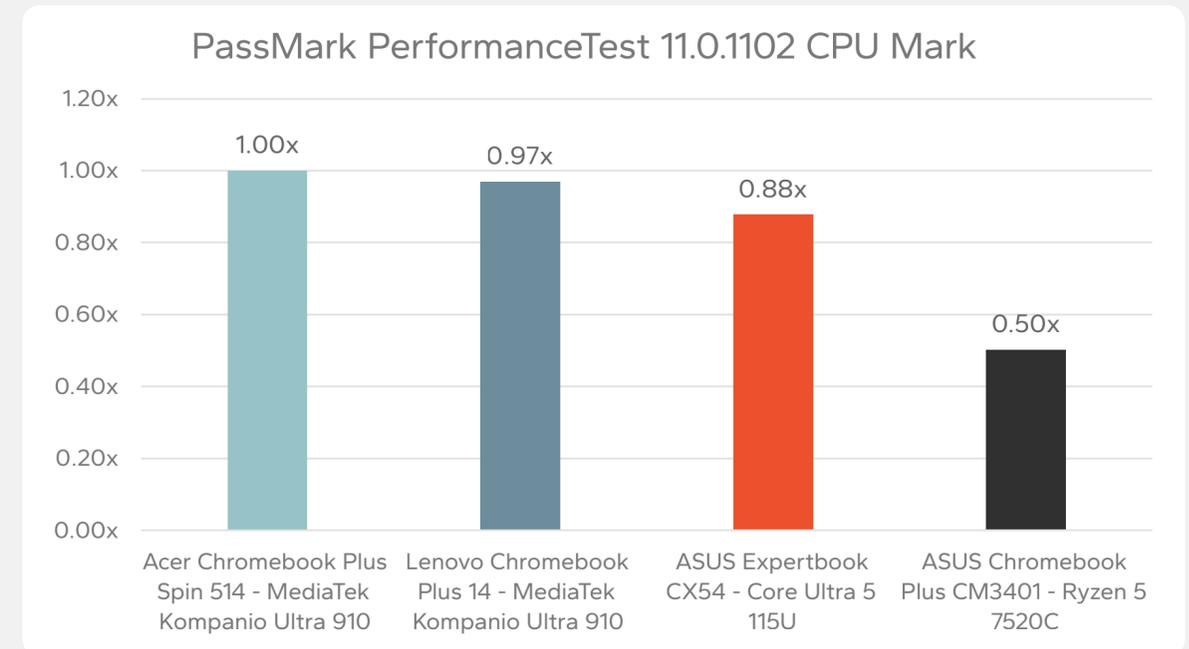
The Kompanio Ultra 910 continues its performance dominance by scoring substantially higher than both x86 CPUs in Geekbench 6. In the multi-threaded test, the MediaTek processor was 20% faster than the Core Ultra 5 115U and 85%

faster than the Ryzen 5 7520C, while in the single-threaded test it was 29% and 85% faster than the Intel and AMD processors respectively.

Given that Geekbench 6 is mostly an indicator of raw horsepower, it's clear that the Kompanio Ultra 910 isn't let down at all by its DNA; if anything, it's the very thing that makes it so potent.

The other CPU benchmark we tested was Passmark, which was tested in single-threaded mode.

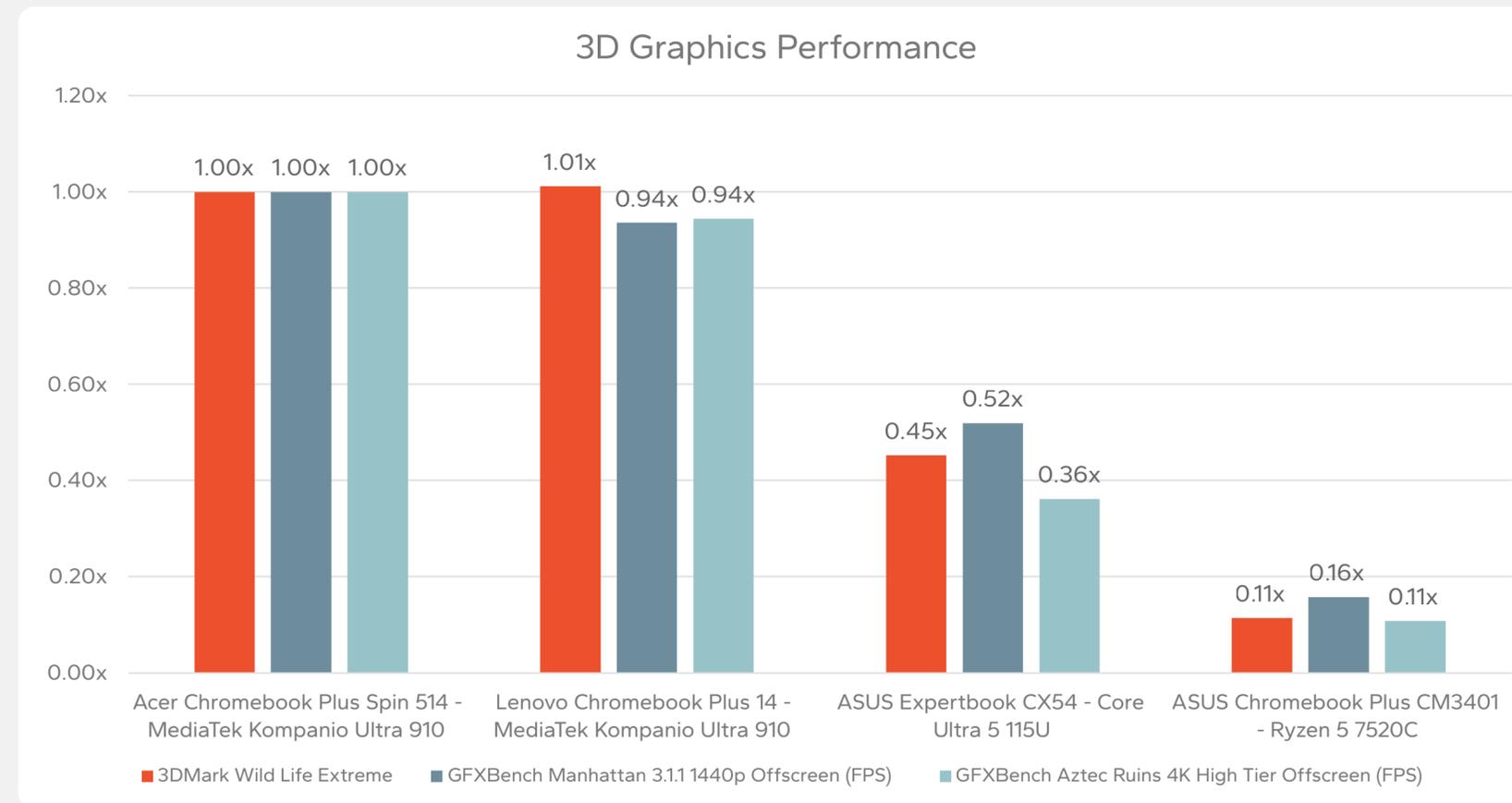
The results are similar to what we observed in Geekbench 6's single-threaded test, with the Kompanio Ultra 910 leading the Core 5 Ultra 115U by 14% and the Ryzen 5 7520C by 99%, a doubling of performance. The MediaTek chip's lead in the single-threaded Geekbench 6 and these Passmark results show us why it did so well in the browser benchmarks, as browsers are also heavily reliant on just one or two CPU threads.



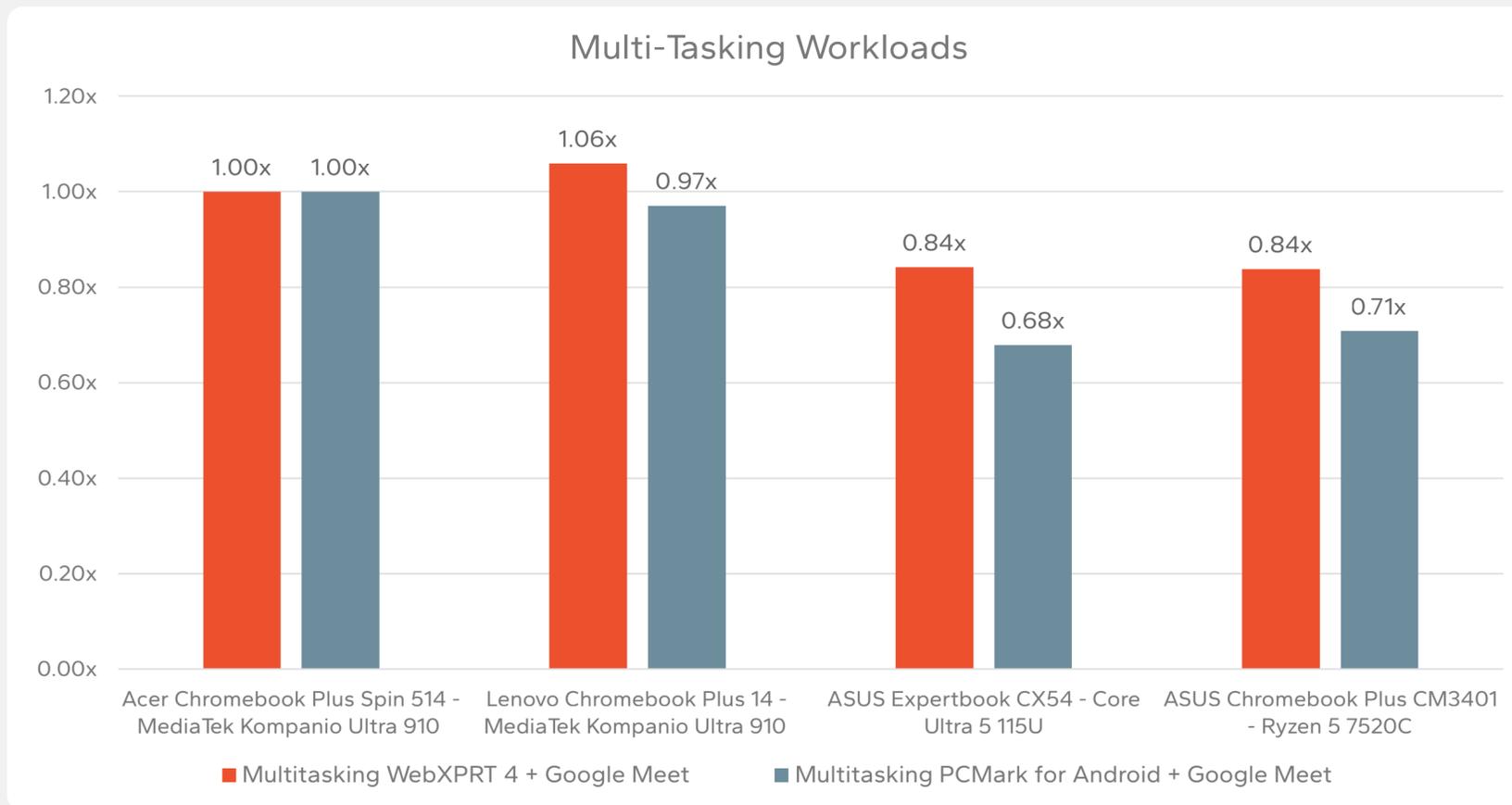
Graphics Performance

We tested overall graphics performance across three benchmarks: 3DMark Wild Life Extreme, GFXBench Manhattan, and GFXBench Aztec Ruins to evaluate the GPU performance across all these platforms.

The results were broadly similar across all three benchmarks, where the Kompanio Ultra 910 was multiple times faster than both the Intel and AMD CPUs: 2.2x and 8.8x faster respectively in Wild Life Extreme, 1.92x and 6.25x in GFXBench Manhattan, and 2.78x and 9.09x in GFXBench Aztec Ruins. MediaTek is essentially in a completely different segment compared to Intel and AMD when it comes to graphics, which means greater performance in GPU compute, Android games, and Android apps where graphics are important.



Multitasking Performance



Users are often running multiple different workloads at once on their devices, and to simulate this we ran tests in browser benchmark WebXPRT 4 and PCMark for Android Work 3.0 while Google Meet was running in the background with a live video call.

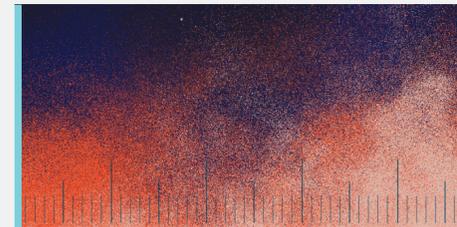
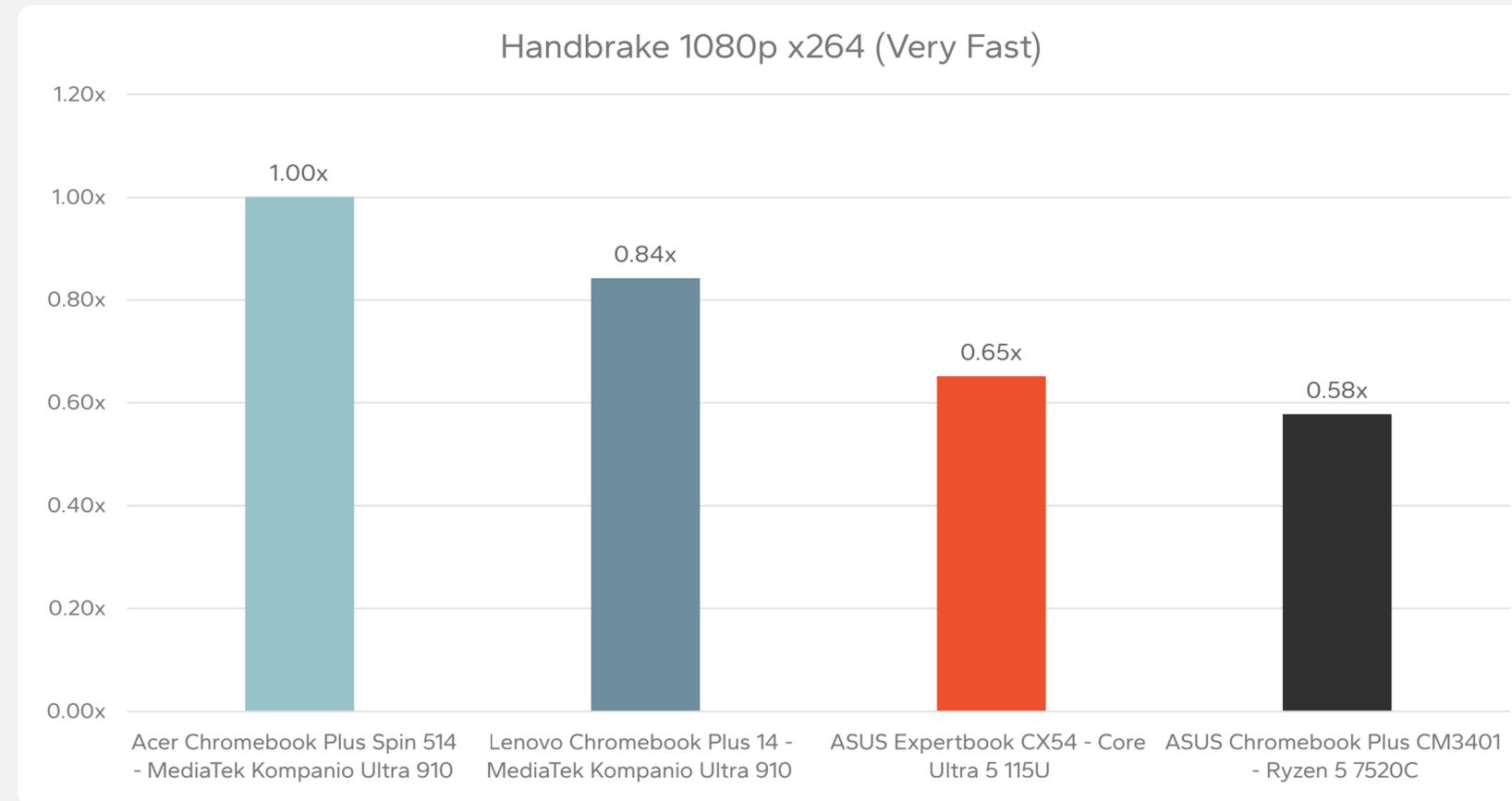
In WebXPRT 4 plus Google Meet, the Kompanio Ultra 910 was 26% faster than both the Core Ultra 5 115U and the Ryzen 5 7520C, which scored similarly. MediaTek expanded its lead to 47% over the Intel CPU and 41% over the AMD CPU. Both x86 CPUs actually performed nearly as well as the Kompanio Ultra 910 when they were just running WebXPRT 4 by itself, but they struggle significantly with Google Meet thrown into the mix.

This shows us that the multi-tasking capability of the modern MediaTek processor is well ahead of competing x86 options, so businesses and education departments should understand those implications for their user base.

Content Creation Performance

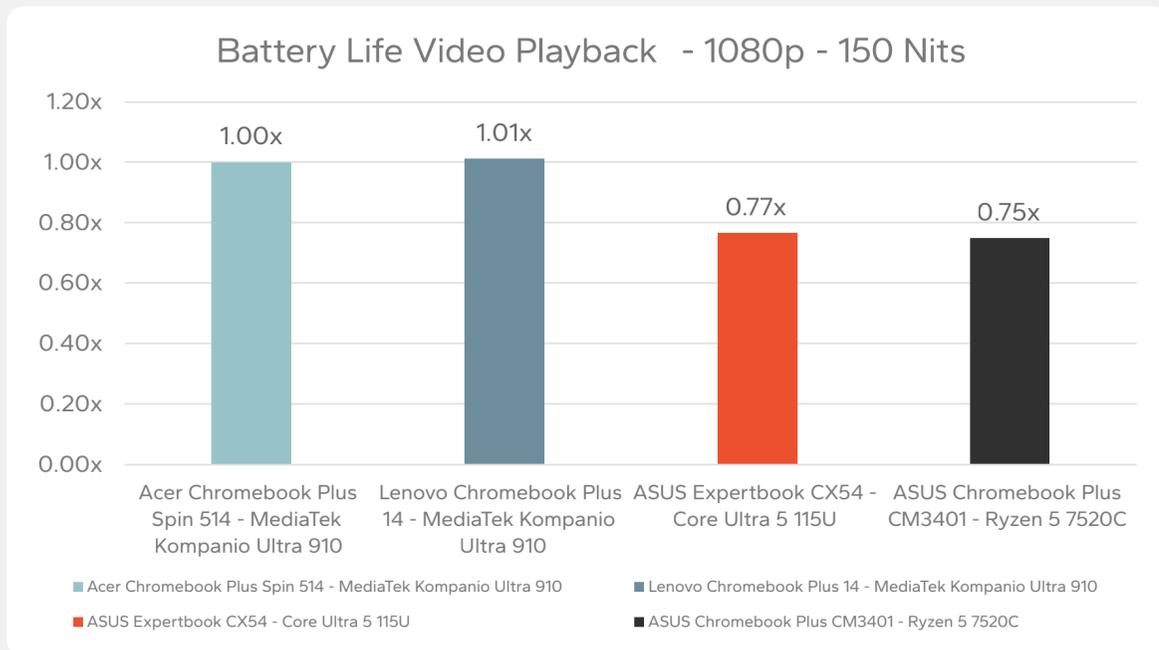
To test content creation performance, we used Handbrake and exported a 1080p video in x264 with the 'Very Fast' preset.

The Kompanio Ultra 910 comes out significantly ahead: up to 53% faster than the Intel CPU and up to 73% faster than the AMD CPU. And while Handbrake video encoding is just one content creation workload for Chromebook users, these results are indicative of the media handling capabilities of the MediaTek Kompanio Ultra 910 generally.



Battery Life

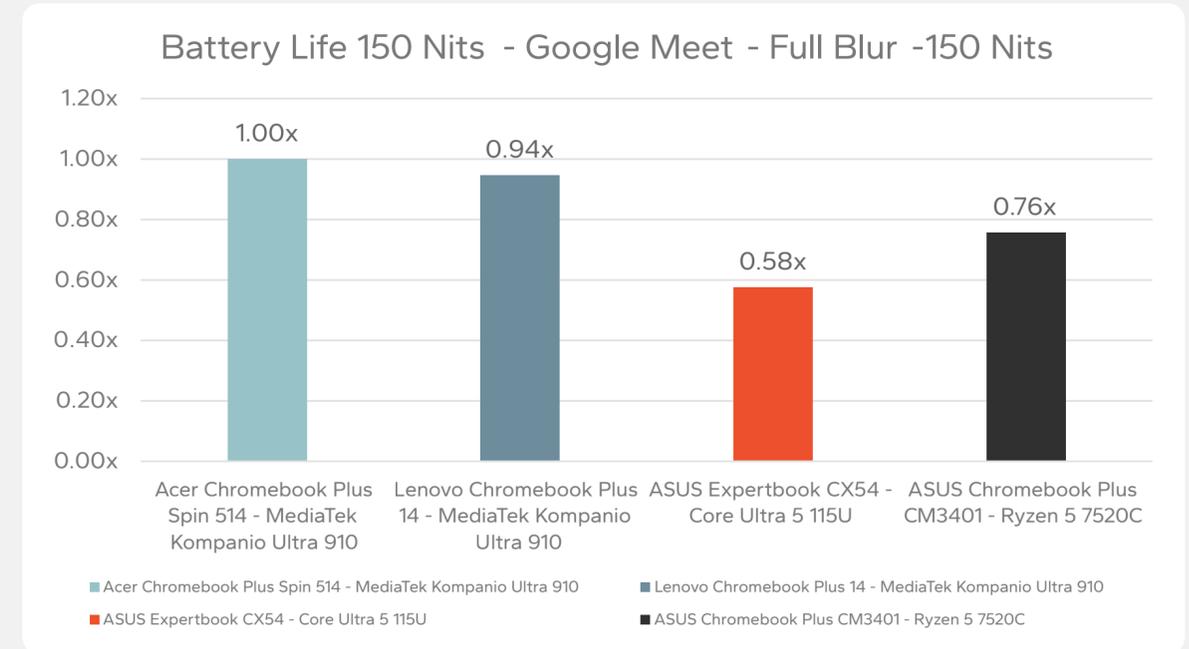
We measured battery life in two different use cases. To start with, we have our video playback test, where we ran a 1080p video with the screen brightness set to 150 nits until the devices died.



The MediaTek-powered Chromebooks lasted for about four hours longer than both x86 models and hit around 16 hours of runtime, which is enough for at least a full day.

We also tested battery life in Google Meet with background blur enabled, a use case we expect to be very common on these sorts of devices.

The relative results didn't really change in Google Meet versus video playback, except for the Chromebook with the Core Ultra 5 115U. While the Kompanio Ultra 910 lasted for around seven hours and the Ryzen 5 7520C mustered just over five hours, the Intel CPU barely lasted for four hours. That means the Kompanio Ultra 910 has up to 74% longer battery life than the competing Intel chip, which is a big deal for education and commercial users, who use video conferencing frequently.

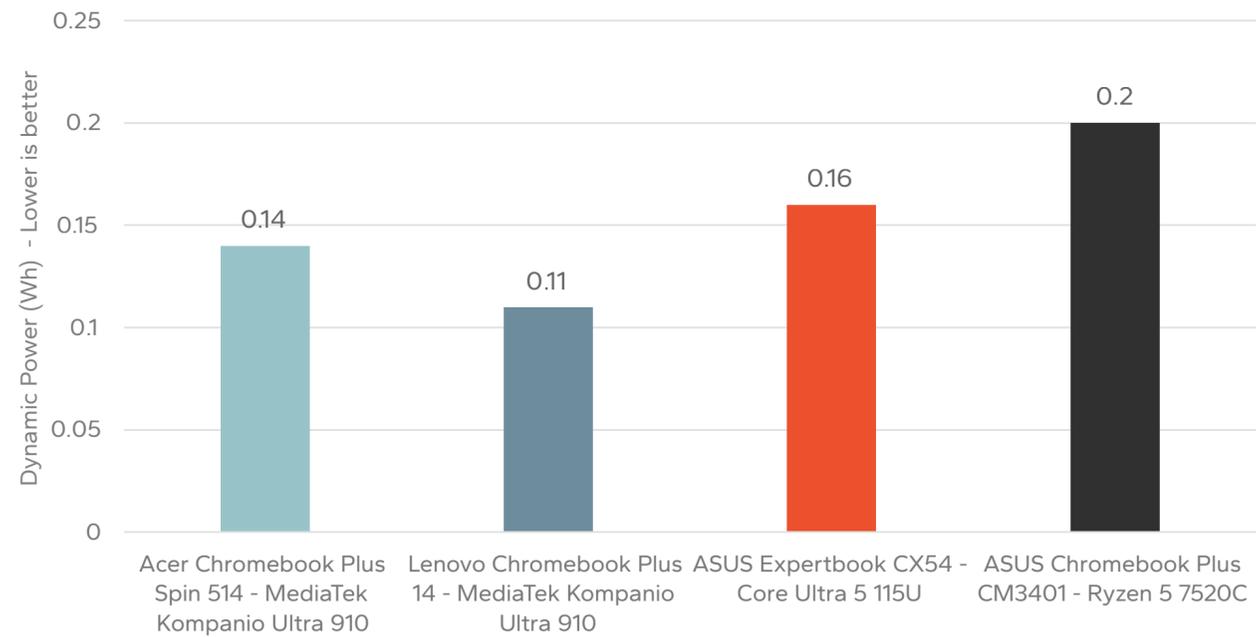


As pointed out earlier, the underlying technology in the Kompanio Ultra 910 hit the market before Intel's Core Ultra 100 CPUs, including the Core Ultra 5 115U, which means MediaTek isn't winning simply because it has newer hardware.

Power Efficiency

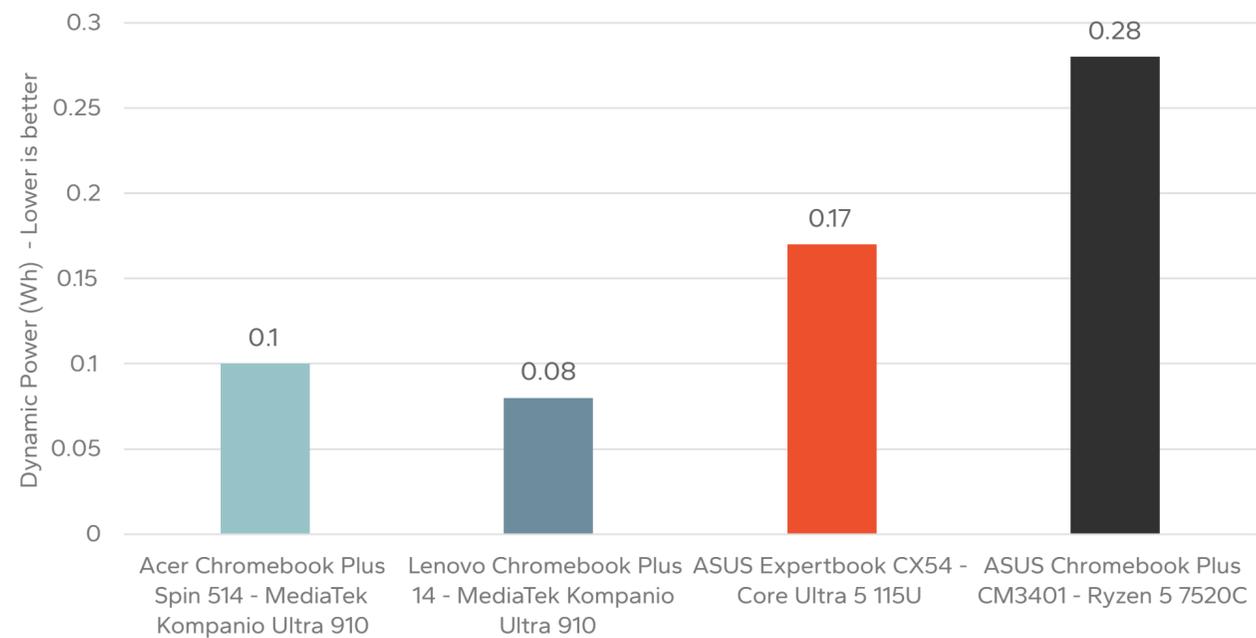
Diving into the power efficiency of these Chromebooks is important to understand where the advancements in silicon provide the most advantages in performance per watt. We measured power consumption in watt-hours, and gathered power consumption information while running two different workloads.

Dynamic energy (Wh) - Google Meet - Full Blur



In these charts, note that lower is better (less power consumed for the workload). Google Meet with blur enabled represents a middle-weight workload for our Chromebooks, and we can see that the Kompanio Ultra 910-powered devices won partly because they consume less power. The x86-based laptops would have needed to come with bigger batteries to compete, which means bigger, heavier devices and elevated price tags.

Dynamic energy (Wh) - Asphalt - Race

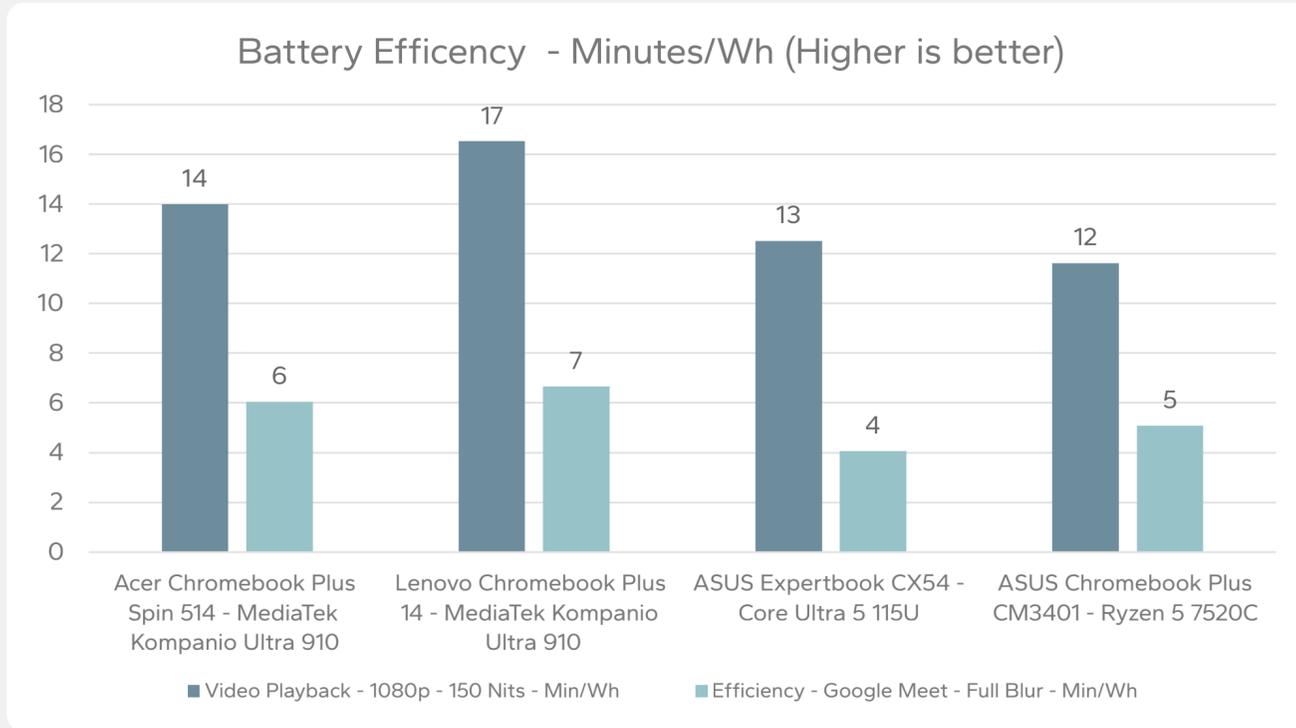


We also tested the Android game Asphalt, which is much more reliant on the integrated graphics for the primary computing.

Clearly, MediaTek is leagues ahead of both Intel and AMD when it comes to power consumption in graphics. The Kompanio Ultra 910 consumes about half of what the Core Ultra 5 115U needs, and around a third of what the Ryzen 5 7520C guzzles. It just isn't even close.

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Power Efficiency



To clearly illustrate how efficient these chips are, we measured battery life against power consumption in minutes per watt-hour of battery capacity. Basically, this calculation makes it clear how long each device would last if they all had the same battery.

It's clear that the Kompanio Ultra 910 is significantly more efficient than the x86 CPUs. In video playback, the MediaTek chip got up to 42% more minutes per watt-hour in the battery; in Google Meet with blur, it got up to 75% longer battery life out of every watt-hour. Chromebooks using the Kompanio Ultra 910 have great battery life because the chip inside consumes very little power and is very efficient.

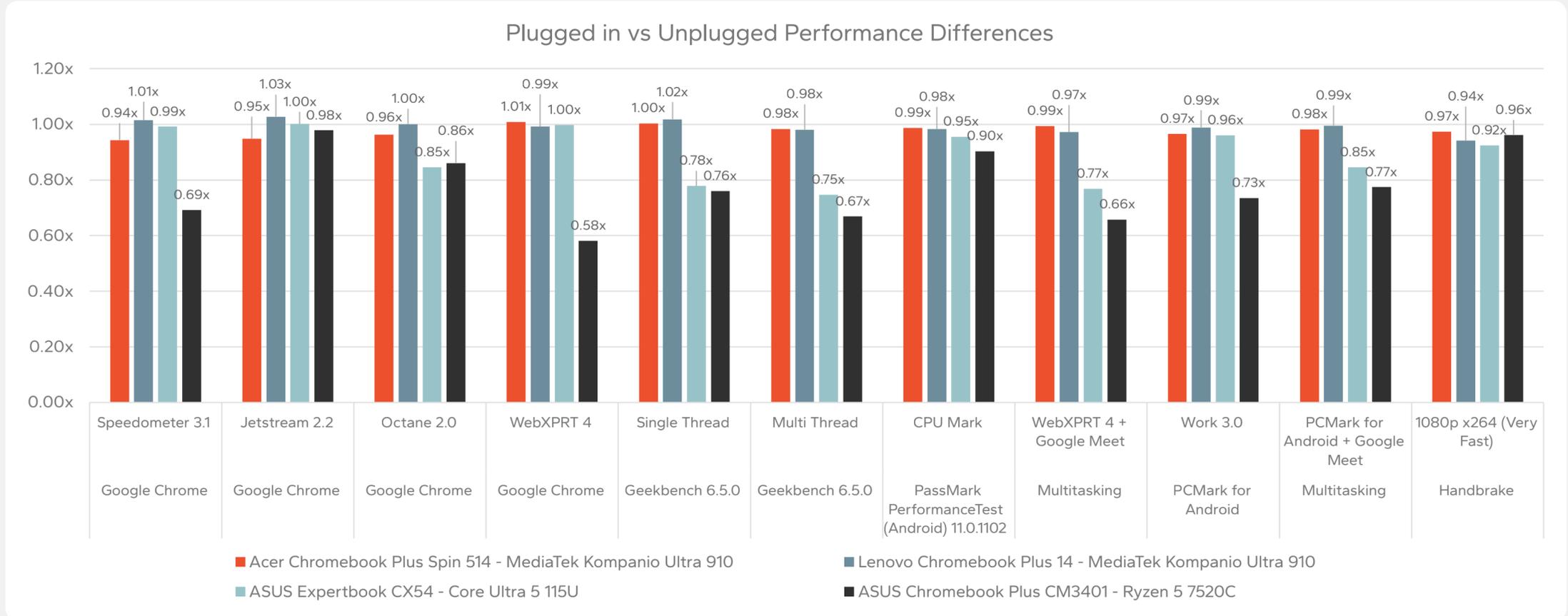


Performance on Battery

Measuring performance of laptops while running on battery, rather than when plugged into the wall, is becoming increasingly important when evaluating devices. Some platforms have shown significant performance degradation when unplugged in order to extend battery life, but that can result in a poor consumer experience if performance drops too much.

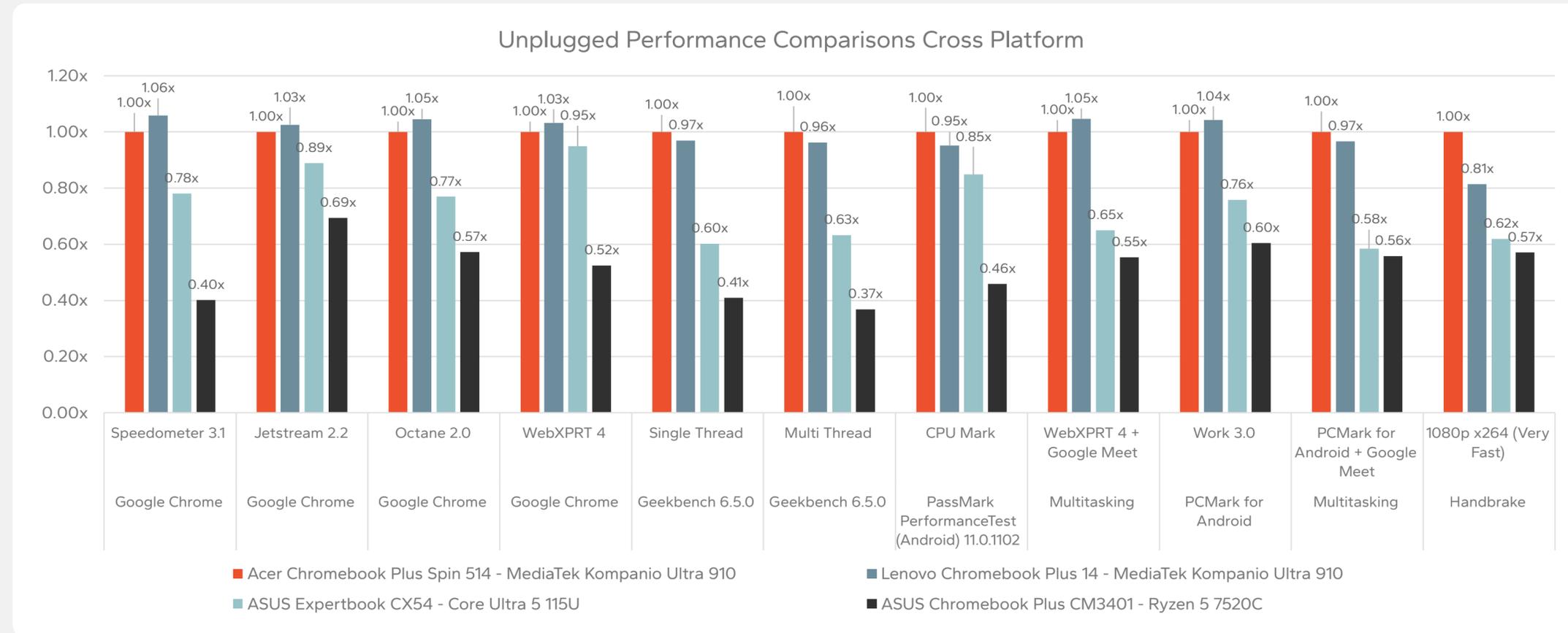
To test performance using DC power from the battery, we reran most of our benchmarks on each Chromebook while disconnected from AC power from the charger. This first graph shows performance retention, or DC versus AC performance for each platform compared to itself.

While the Chromebooks using the Kompanio Ultra 910 performed practically the same using DC power as they did with AC power, it was a different story for the x86-powered Chromebooks. The Core Ultra 5 115U lost about 25% of its performance in nearly half of the benchmarks, while the Ryzen 5 7520C suffered double-digit losses in every test but one, and these losses ranged from 10% to as much as 42%. By contrast, the Kompanio Ultra 910's worst case was a 6% loss.



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Performance on Battery



In this second chart, we demonstrate how each laptop performs with DC power relative to each other, in one complete view.

In this comparison of absolute performance, the Kompanio Ultra 910's performance lead when unplugged is even greater than it was with AC power from the charger. In raw horsepower test Geekbench 6, the MediaTek chip is 67% faster than the Core Ultra 5 115U in the single-threaded version and 58% faster in the multi-threaded version. On average, the Kompanio Ultra 910 was 54% faster than the Core Ultra 5 115U and 89% faster than the Ryzen 5 7520C. It's hardly a competition.

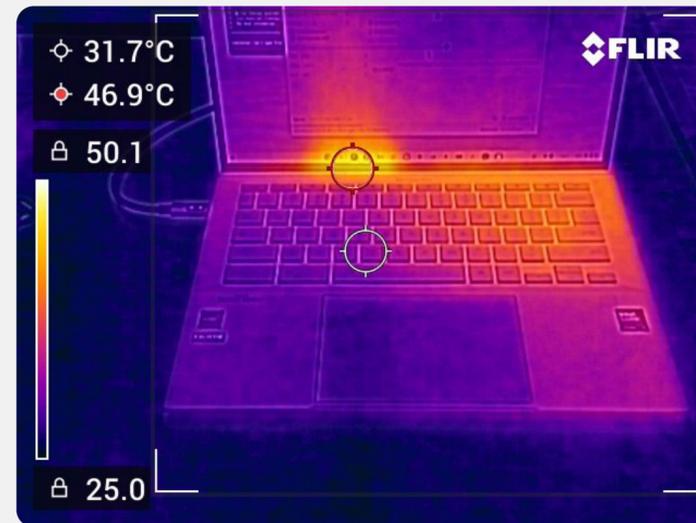


Thermal Performance

To test thermal performance, we ran our Handbrake test and used a thermal imager to take temperature measurements on the keyboard and the surface of the bottom panel, two key areas where consumers will likely notice if a laptop is getting too hot.



Lenovo/MediaTek Top



ASUS/Intel Top



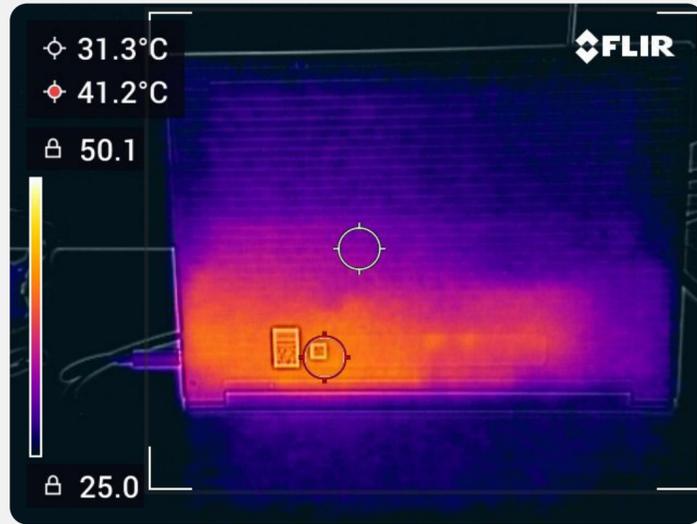
ASUS/AMD Top

The average keyboard temperature for the Kompanio Ultra 910-powered Chromebooks was noticeably better than for the x86 Chromebooks: a range of 29.1 to 30.3°C versus 31.7°C on the Intel device and 35.5°C on the AMD machine.

But this is just the average, and the difference in hot spot temperature is even greater with the MediaTek Chromebooks hitting 38.7 to 39.4°C versus 46.9°C and 44.9°C on the Core Ultra 5 115U and Ryzen 5 7520C laptops respectively. With roughly 20% lower temperatures on the Kompanio Ultra 910-powered Chromebooks, users would absolutely notice the difference.

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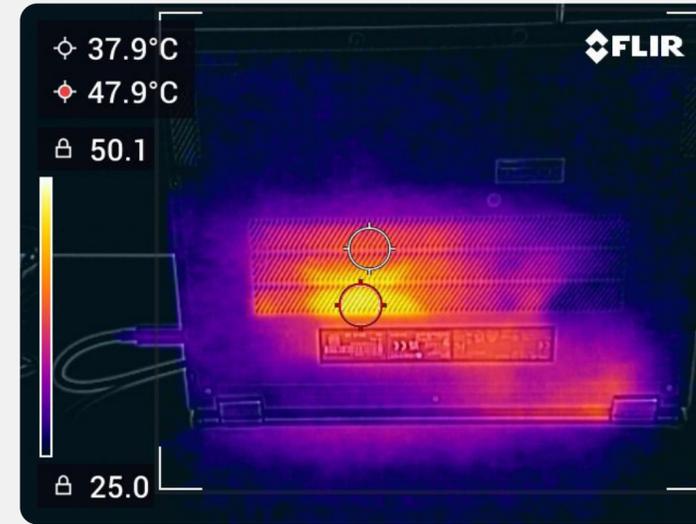
Thermal Performance



Lenovo/MediaTek Bottom



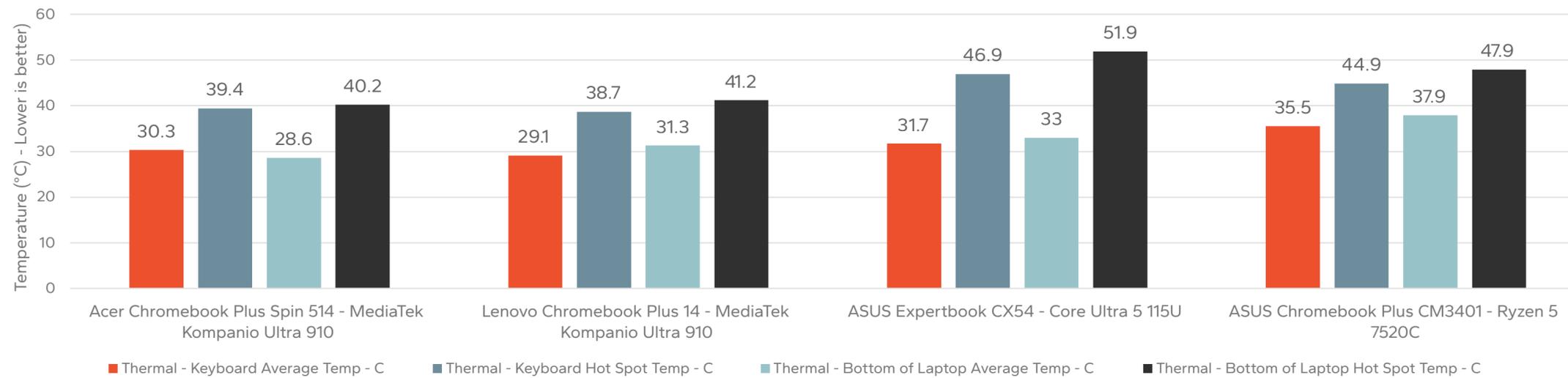
ASUS/Intel Bottom



ASUS/AMD Bottom

It's the same story with the hot spot on the bottom panel. The Kompanio Ultra 910 PCs peaked at 40.2 and 41.2°C while the AMD Chromebook hit a balmy 47.9°C and the Intel Chromebook hit a blisteringly hot 51.9°C. Again, the MediaTek machines are about 20% cooler than the competition, but in this case it's even more important considering the Core Ultra 5 115U-powered Chromebook would be very uncomfortable.

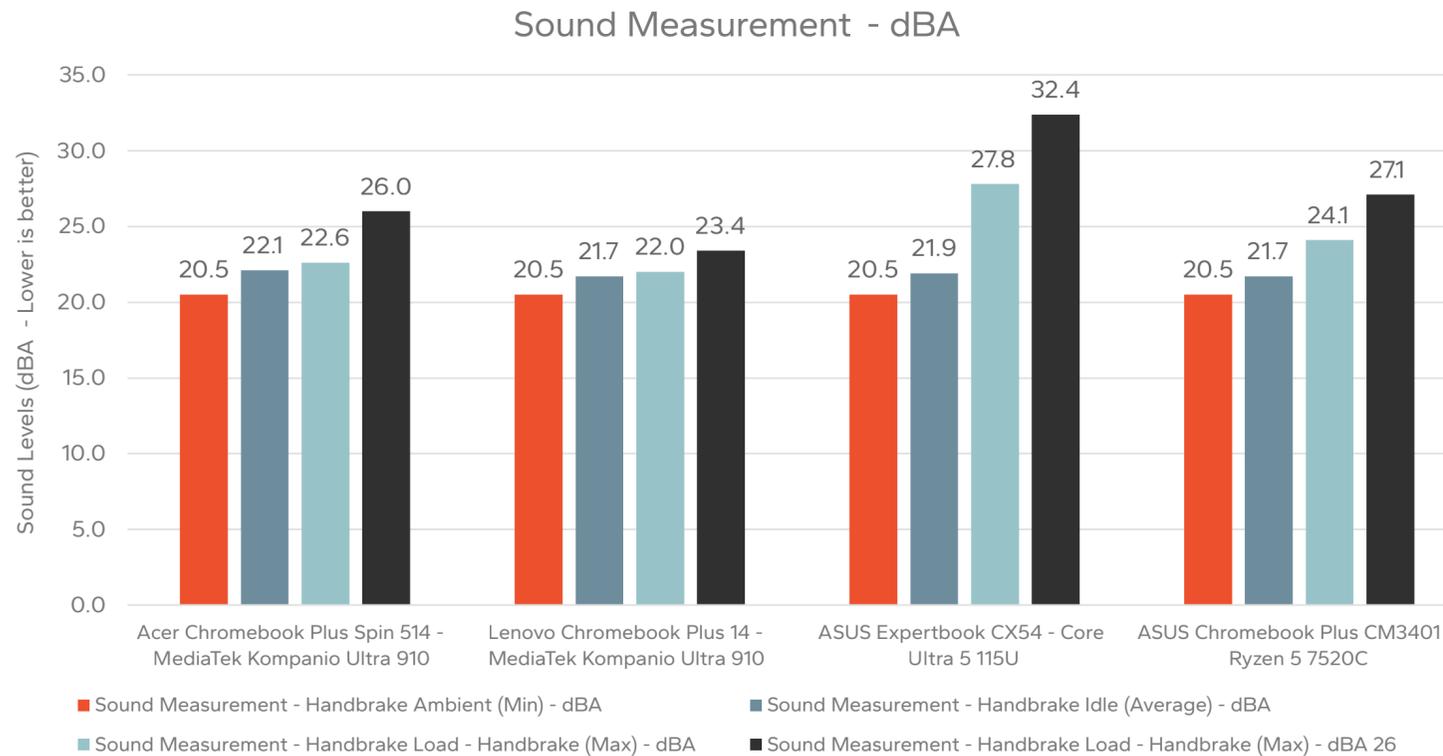
Thermal Performance



These results are a consequence of the Kompanio Ultra 910's great power efficiency and low power consumption. In processors, power consumption directly translates to heat, so more power draw leads to more heat and higher temperatures. While a bigger and better cooler can reduce temperatures, simply having a CPU that consumes less power and gets less hot is also a solution, and arguably a better one. And considering the MediaTek CPU is also the leader in pure performance, this an excellent result and solution for modern Chromebooks.

Acoustic Performance

We gathered acoustic data while running our Handbrake test to see how loud each of the Chromebooks got during a heavy workload. We have a noise controlled chamber for this test where the ambient noise floor was 20.5 dBA.

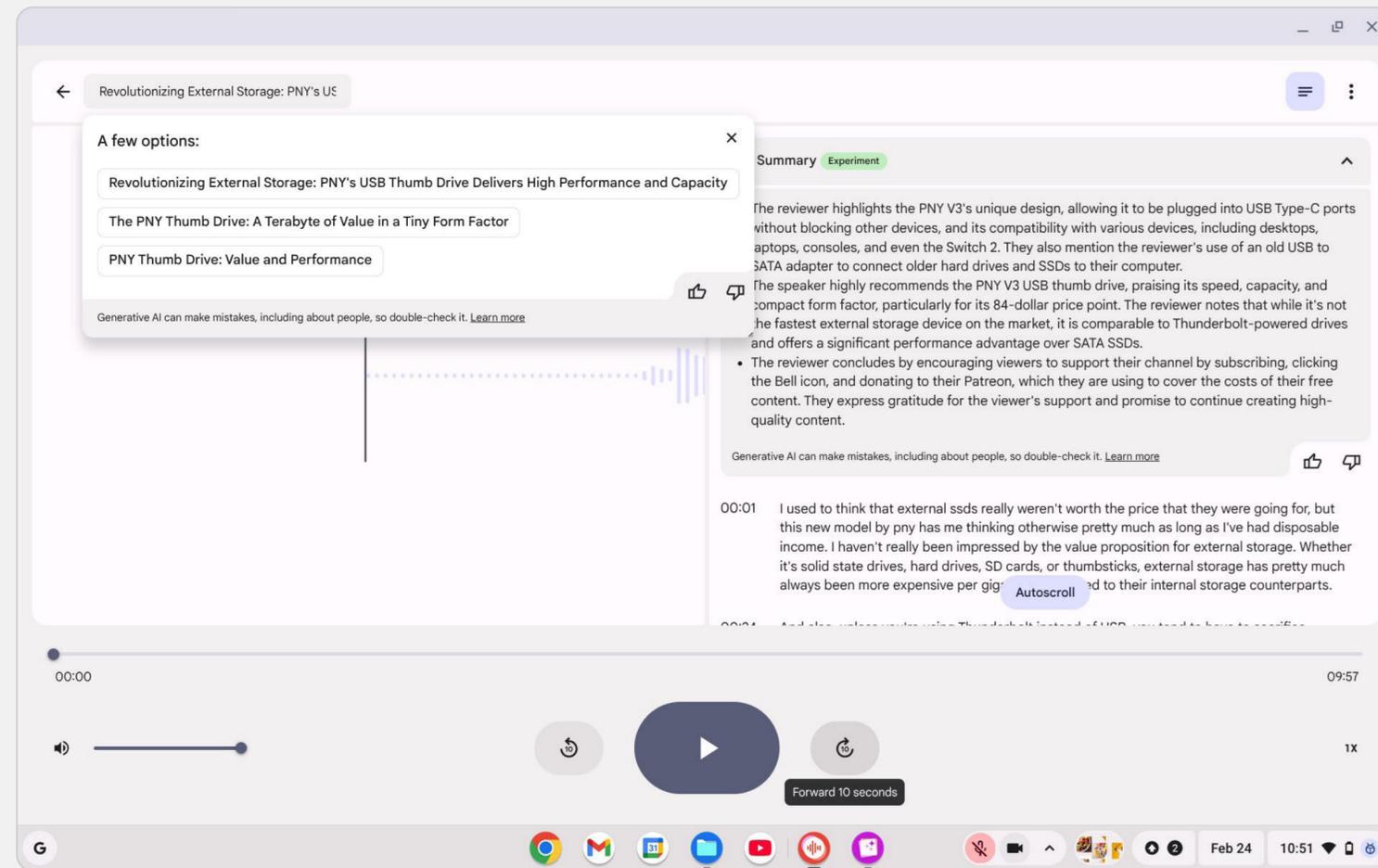


The average amount of noise under load was 22.0 to 22.6 dBA for the Kompanio Ultra 910 Chromebooks, lower than the 24.1 dBA the Ryzen 5 7520C Chromebook notched and much lower than the 27.8 dBA heard on the Core Ultra 5 115U Chromebook.

At peak, it gets even better for MediaTek, with the two Chromebooks powered by its processor hitting a maximum dBA of 23.4 to 26 dBA. The AMD device hit 27.1 dBA and the Intel laptop registered at 32.4 dBA, which is definitely noticeable to users. It would be hard for anyone to tell by listening in a typical office if the Kompanio Ultra 910 Chromebooks were even running at all due to how quiet they were.

AI Features

One of the key selling points of the latest generation of ChromeOS and the MediaTek CPUs are the innovative and exclusive AI tools and features that come with Kompanio Ultra 910 Chromebooks. These run locally thanks to the platform's powerful NPU, something that the tested Intel and AMD chips for ChromeOS lack. These tools and features are termed Enhanced Recorder, Image Erase, Image Gen, and Smart Grouping.



Enhanced Recorder is an addition to the Recorder app that enables on-the-fly transcription for audio, whether it's coming through a microphone or from playback on the Chromebook itself. Using it is very straightforward: opening up the Recorder app and then clicking the gear icon for settings shows the 'Audio transcription' option, which needs to be enabled. Users can also enable 'Allow speaker identification' to allow the transcript to label different speakers, as well as 'Recording summary

and title creation' to generate a summary of the transcription and a title for it.

We threw this AI feature at some jargon heavy videos (such as our own Signal65 video content) and it did quite well. The occasional incorrect word or phrase didn't make transcriptions unreadable, and whenever it missed industry-specific terms the context was sufficient to understand what was actually meant. The speaker identification function did not work entirely

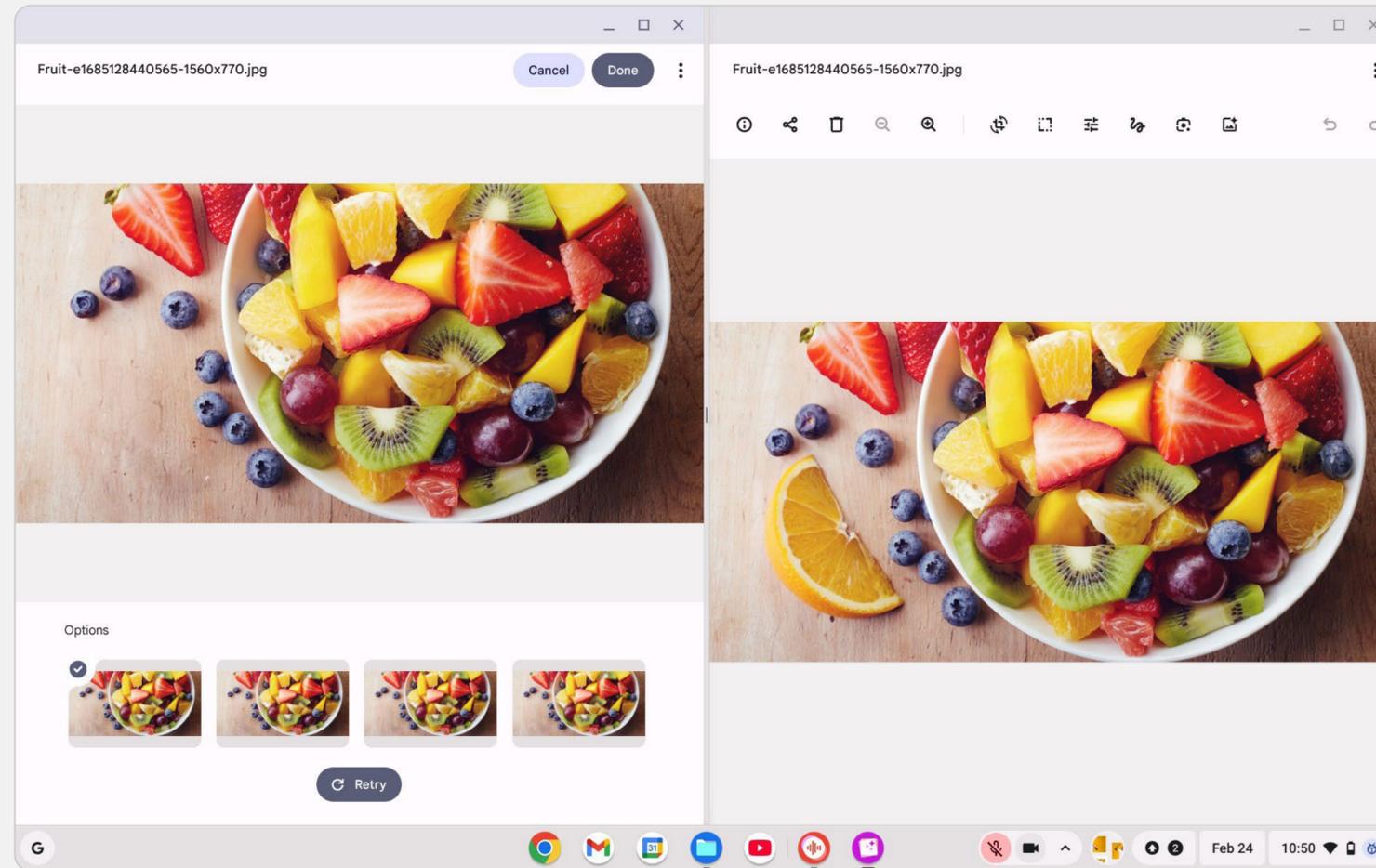
and seemed to assign different parts of the transcription to different speakers at random, including in the middle of sentences.

The transcription summary feature worked well on a 10-minute video and offered a 160-word summary divided into three bullet points. The title generation tool offered three different options, each of which were actually very similar to the original title of the video, which was not included in the audio transcription.

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AI Features

Image Erase and Image Gen are two similar tools that exist in the Gallery app. Image Erase is a simple tool users can employ for removing objects from photos. Users may either use a pointer tool or a resizable square box to highlight the object that should be removed. The pointer offers the most precision but requires a little more work to highlight, while the box is quick and simple but may include stuff that shouldn't be erased. Using either method to just include what to erase worked well in our testing (the pointer tool was more reliable because it was more precise).

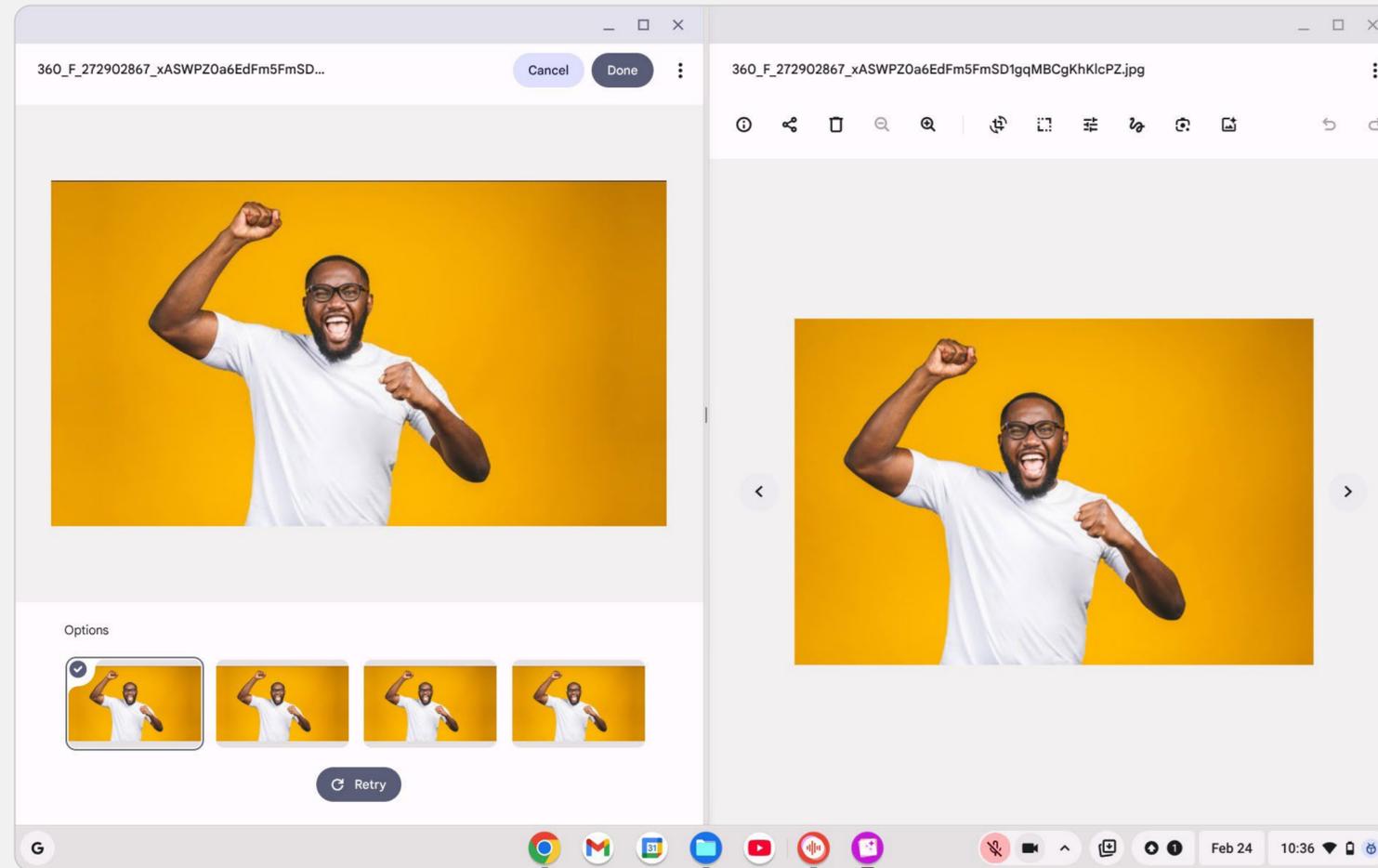


After Image Erase versus before Image Erase.

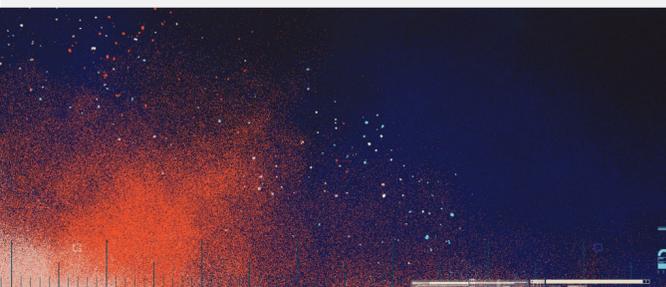
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AI Features

Image Gen by contrast uses image generation AI to expand the borders of the image. This feature worked best with images where whatever was off-screen could be inferred (for example, the above image of a bowl of fruit where only half the bowl was pictured) but struggled to deliver a realistic product. In many instances, it was clear where the original photo ended and the new one began. It did however perform very well with images that had a simple background, like a simple color with a gradient.

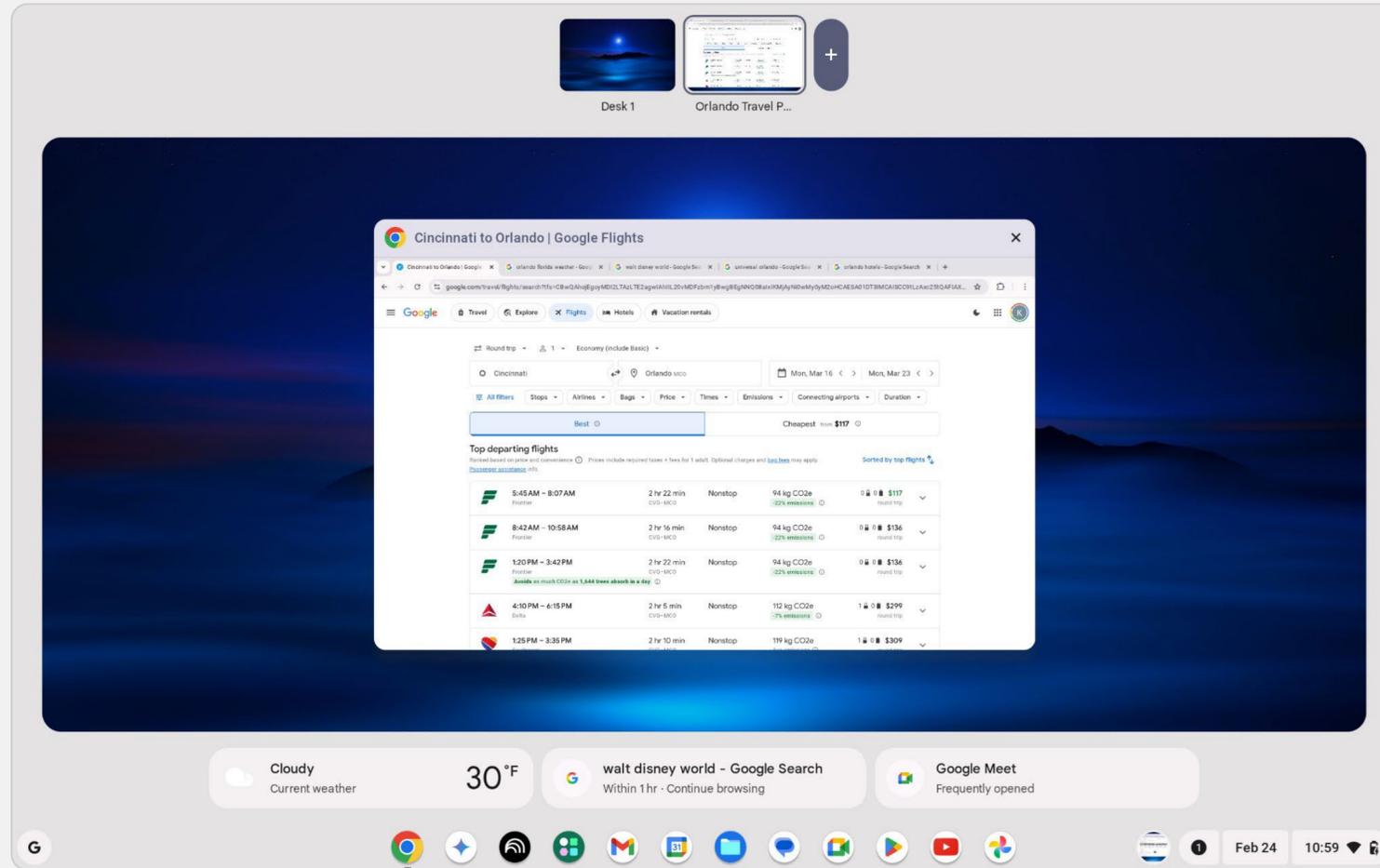


After Image Gen versus before Image Gen.



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AI Features



Smart Grouping is a Chrome tool that uses AI to observe what tabs a user has open and can automatically group them by subject matter. For example, a user might be looking up information about Barcelona because they're looking to visit it soon and have tabs pulled up like 'Barcelona soccer game' and 'Barcelona weather.' Smart Grouping can take those tabs and organize them into a virtual desktop or desk, as long as there's at least four relevant tabs (the tool also won't take more than 25 tabs into a single desk).

We observed this feature in action on the Acer Chromebook Plus Spin 514 after we spun up a few tabs about taking a vacation to Orlando, including a search about Cincinnati to Orlando flights, the weather in Orlando, Orlando hotels, and Universal Studios Florida. In the three finger swipe menu, Smart Grouping appeared as an option, and after clicking it ChromeOS created a new desk exclusively for researching a vacation to Orlando.



The Kompanio Ultra 910 Chromebooks for Education



Provides **33% longer battery life** during student workload.



Great performance even when unplugged and running **multiple workloads**.



Kompanio Ultra 910 Chromebooks are **up to 28% quieter** than x86 models.

Many of the Kompanio Ultra 910's advantages in education over prior generation x86 CPUs are very obvious. Everyone likes longer battery life, especially under moderate workloads. Much of modern teaching involves video playback, an area where the MediaTek-powered Chromebooks excel: over 16 hours of video playback versus roughly 12 hours on the x86 Chromebooks, or 33% longer battery life.

Then there's remote learning, and when a student is taking their laptop out of the classroom, battery life becomes even more important, especially when attending class virtually. Our testing shows

that the Kompanio Ultra 910 Chromebooks achieve up to seven hours of battery life while in Google Meet, nearly double the four hours observed on the x86 devices. This is thanks to the MediaTek chip drawing up to 40% less power than the x86 processors. If a student or teacher was stuck in back-to-back classes and didn't have access to a charger for whatever reason, only one of the chips we tested would allow them to get through the day, and that's the Kompanio Ultra 910.

More battery life also means MediaTek Chromebooks don't need to be charged as

much as their x86 counterparts. That's a great convenience for both students and teachers, since a half-full battery will last much longer with the Kompanio Ultra 910 than with any other x86 processor. Additionally, we may expect the batteries in these Chromebooks to last for longer since they'll likely be charged fewer times, which is good for school budgets in the long term.

While education hasn't typically been an area where performance is the most important feature, that is changing as remote learning and more advanced software become more normal. For instance, if a teacher wants to create a video

lecture, whether it's just a simple voiceover and a slide deck or something with more editing behind it, that video needs to be rendered so it can be played in a format like .mp4. We found that video encoding in Handbrake was up to 53% faster than on x86 CPUs, which is certainly a big difference.

Perhaps the most intense thing that all students do every day when they're learning remotely is running virtual meeting software plus one or more apps at the same time, and for some processors this isn't so easy. The Kompanio Ultra 910 however scored up to 26% better than x86 CPUs in WebXPRT while running Google Meet in the

CHROMEOS PERFORMANCE LEADERHIP: THE KOMPANIO ULTRA 910 ADVANTAGE

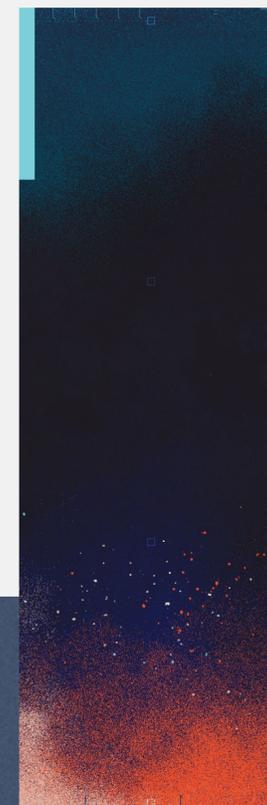
The Kompanio Ultra 910 Chromebooks for Education

background. While 26% is less than the 53% we saw in Handbrake, keep in mind that the MediaTek Chromebooks are also getting improved battery life while maintaining a performance advantage.

The 26% better performance figure does come from our AC testing with the charger, as opposed to DC testing with the battery, so let's talk about performance while unplugged. For years, laptops with x86 processors have performed worse when using DC power from the battery, but the Kompanio Ultra 910's performance is practically the same whether it's plugged in or not. While the Chromebooks with x86 CPUs saw their performance fall by as much as 25% when switching from AC to DC, the Kompanio Ultra 910-equipped devices retained 98% of their performance on average, and in the worst case scenario lost just 6% in one benchmark.

Additionally, this excellent performance does not result in an extremely loud machine. Both the Acer and Lenovo Chromebooks with the Kompanio Ultra 910 were the quietest we tested despite being much faster than the x86-powered Chromebooks. Whether it's a physical or virtual classroom, the last thing anyone wants is a loud computer.

Of course, most of the education system is publicly funded, and the case needs to be made that Kompanio Ultra 910-powered laptops are the way to go. However, because the MediaTek chip performs up to 14% faster than x86 CPUs in industry-standard test Passmark, Chromebooks with the Kompanio Ultra 910 are in a strong position against competing models with x86 processors.



The Kompanio Ultra 910 Chromebooks for Enterprise



74% better battery life in virtual conferencing thanks to 40% lower power draw



Excellent performance in work applications that shines **even during multi-tasking**



When operating off the battery, **up to 52% more performance** compared to x86-based Chromebooks

The strengths the Kompanio Ultra 910 offers translate very well to commercial and enterprise use cases. Video conferencing is even more prevalent in business, and the frequency of meetings can range from weekly to daily. It's a big deal that the Kompanio Ultra 910 draws up to 40% less power than competing x86 CPUs in Google Meet, because users can enjoy up to 74% longer battery life as well as a cooler and quieter laptop. Someone could have a full day of meetings without even reaching for a charger.

The performance advantages for productivity apps are also significant. In PCMark Work 3.0,

we found that the Kompanio Ultra 910 scored up to 35% better than the x86 chips we tested. This score is based on performance across a variety of real-world use cases: web browsing, writing, video editing, photo editing, and data manipulation (such as reading data from an Excel spreadsheet).

Of course, like in education, business workers will want to video call and do work at the same time, and the picture only gets better for the Kompanio Ultra 910 in this regard. While running Google Meet at the same time as the PCMark Work 3.0 benchmark, the MediaTek processor

actually expanded its lead to up to 45% faster than the x86 CPUs. And as mentioned previously, the Kompanio Ultra 910 Chromebooks were whisper quiet even under load, so users won't ever have to worry about loud fans disrupting any meetings.

Finally, performance on-the-go is a key advantage of the Kompanio Ultra 910. Not only is performance effectively the same whether users are plugged in or running off the battery, but on-battery performance is up to 52% better in benchmarks like Geekbench 6 compared to x86 processors. For a profession where having

access to an outlet isn't always a given, great performance no matter where you are is hard to understate. It's also one less thing to worry about; when someone has a big presentation to do, the last thing they want to think about is finding an outlet and a long enough charger for their laptop.

The Kompanio Ultra 910 Chromebooks for Consumers



Up to 16 hours in video playback, compared to 12 hours for x86 Chromebooks



35% faster in web browsing and **31% faster** in PCMark



Multiple times faster gaming while also consuming half the power or less compared to x86 models

A user doesn't need to be in education or business to enjoy the benefits of a Chromebook powered by the Kompanio Ultra 910; many of the things this MediaTek chip excels at are extremely relevant to the average consumer experience.

To start with, video playback ranks as one of the most common use cases for laptops, and the Kompanio Ultra 910 really shines here. While x86 Chromebooks could muster around 12 hours in our video playback benchmark, the Chromebooks with the Kompanio Ultra 910 lasted for over 16 hours. That's enough for a full day of heavy use without worrying about charging, a great

experience for anyone on a flight or otherwise staying very mobile for an entire day.

Another major use case for Chromebooks is, naturally, web browsing, and here the Kompanio Ultra 910 also shines. In our testing of Speedometer, the MediaTek CPU was up to 35% faster than its x86 competitors. This means a snappier and less laggy browsing experience, a creature comfort that users really enjoy.

Performance is also a significant consideration when it comes to running Android apps on ChromeOS, and unsurprisingly the Kompanio

Ultra 910 has a big advantage here, to the tune of an up-to-31% higher score in PCMark for Android versus x86 CPUs. With Android apps being so important to the ChromeOS ecosystem, having a higher tier of performance is nothing but a good thing.

And if there's any kind of Android app people will want to run on their Chromebook, it's a gaming app. Traditionally, gaming has been the domain of x86 processors, but when we tested 3DMark on our Chromebooks, the Kompanio Ultra 910 was 2.2 times faster than the Core Ultra 5 115U and 8.8 times faster than the Ryzen

5 7520C. There is simply no comparison between MediaTek's chip and its x86 competitors.

Not only is the Kompanio Ultra 910 the fastest, it also consumed the least amount of power in racing game Asphalt; at just 7.46 watts consumed in our test, it's in a whole different universe compared to the Core Ultra 5 115U's 13.95 watts and the Ryzen 5 7520C's shocking 19.57 watts, nearly three times as much for a fraction of the performance. For mobile gaming, this is the best of both worlds: the greatest performance plus the greatest battery life.

Conclusions

Our testing shows that the Acer Chromebook Plus Spin 514 and the Lenovo Chromebook Plus 14 with the MediaTek Kompanio Ultra 910 offer the best performance for ChromeOS today, and it isn't even close. Across all benchmarks, the MediaTek chip ranged from 20% to 85% faster than competing x86 CPUs, namely the Core Ultra 5 115U and Ryzen 5 7520C inside the ASUS Expertbook CX54 and the ASUS Chromebook Plus CM3401 respectively. While Intel and AMD do have newer and faster processors in their portfolios, they have chosen not to make them available to Chromebooks, which just makes the Acer Chromebook Plus Spin 514 and the Lenovo Chromebook Plus 14 even more compelling.

The performance advantage is especially apparent when operating off of battery or DC power. We found that the Kompanio Ultra 910 usually retains all of its speed when comparing charger or AC performance to DC performance, and in its single worst result slowed down by 6%. By contrast, the x86 CPUs suffered a 25% performance loss on DC power; in one case the Ryzen 5 7520C lost a whopping 42%.

The Kompanio Ultra 910-powered Chromebooks are equally compelling in

power efficiency across practically every workload. In our testing of Google Meet, we found that the Kompanio Ultra 910 lasted nearly seven minutes per watt hour while the x86 CPUs lasted only four to five minutes, meaning the MediaTek processor was up to 60% more efficient. In gaming, the numbers got even more insane as the Kompanio Ultra 910 delivered a superior experience while consuming up to 62% less power compared to competing x86 processors.

Greater efficiency also means longer battery life, and unsurprisingly the Kompanio Ultra 910 is the leader in this area as well. The MediaTek chip enabled battery life 30% to 74% longer on the Acer Chromebook Plus Spin 514 and the Lenovo Chromebook Plus 14 than the Chromebooks equipped with x86 processors; that's enough to achieve true all-day battery life even for power users.

For each of the verticals we examined earlier, the case for the Acer Chromebook Plus Spin 514 and the Lenovo Chromebook Plus 14 is obvious. Students and teachers both can enjoy all-day battery life through virtual classes and homework while having uncompromising performance; commercial and enterprise users can get top-notch productivity performance on-the-go and

not have to worry about virtual meetings draining the battery; and regular consumers can enjoy video streaming for hours without reaching for a charger, excellent performance in Android apps, and the best gaming experience possible in ChromeOS.

With the Kompanio Ultra 910, MediaTek is delivering the flagship-level experiences to ChromeOS users who previously had to content themselves with middling x86 processors based on years-old hardware. The Kompanio Ultra 910 outperforms its competitors in every category, and especially in the areas that real users care about: long battery life, consistent performance on-the-go, and cool, quiet operation.



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System Configurations & Applications

	ACER CHROMEBOOK PLUS SPIN 514	LENOVO CHROMEBOOK PLUS 14	ASUS EXPERTBOOK CX54	ASUS CHROMEBOOK PLUS CM3401
CPU	MediaTek Kompanio Ultra 910	MediaTek Kompanio Ultra 910	Intel Core Ultra 5 115U	AMD Ryzen 5 7520C
Graphics	Immortalis-G925	Immortalis-G925	Intel Graphics	AMD Radeon Graphics
RAM	16GB LPDDR5X	16GB LPDDR5X	16GB LPDDR5X	16GB LPDDR5
Storage	256GB UFS 4.0	256GB UFS 4.0	256GB M.2 2280	256GB M.2 2280 NVMe PCIe 3.0 SSD
Display	14" 2880x1800	14" 1920x1200	14" 2560x1600	14" 1920x1200
System BIOS	16174.102.1	16174.126.0	15709.246.0	15390.178.0
Operating System	Google ChromeOS 143.0.7499.150	Google ChromeOS 143.0.7499.150	Google ChromeOS 143.0.7499.150	Google ChromeOS 143.0.7499.150

Applications Used (ChromeOS)

Geekbench 6.5.0

GFXBench (Android) 5.1.5

PassMark PerformanceTest for Android 10.2.1005

Handbrake 1.6.1

Google Chrome 143.0.7499.150

3DMark Android v2.6.5025



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