Lenovo ThinkPad X1 Nano Gen 2: Leverage your time with faster system responsiveness and higher Speedtest scores

compared to Apple MacBook Pro (13-inch)

As companies redefine their work environments, the all in-person workplace is no longer the status quo. The challenge is addressing changing workforce expectations and providing the best tools for productivity and collaboration, whether teams are working in the office or elsewhere. One important tool is a powerful and lightweight business laptop that gets the job done and is easy to transport.

In our hands-on productivity and online collaboration tests, the 13-inch Lenovo® ThinkPad® X1 Nano Gen 2 powered by an Intel® Core™ i7 vPro® processor was lighter and more compact; received higher performance-based Cinebench R23 and Geekbench 5 benchmark scores; completed Microsoft 365 and Adobe® Premiere® Pro tasks faster; and had faster upload/download speeds in our Speedtest® by Ookla® comparisons than an 13-inch Apple® MacBook Pro® powered by an Apple M1 chip. Read on to learn more about our head-to-head business laptop comparisons.

Save your back

27% lighter (with power adapter): 2.63 lbs vs 3.63 lbs

Over 6% less surface area (width x depth)

Benchmark wins

Based on higher Cinebench R23 and Geekbench 5 benchmark scores

Based on faster Microsoft 365 and Adobe Premiere Pro task completions

Speed online collaboration

Based on higher Speedtest scores

Lenovo ThinkPad X1 Nano Gen 2

According to Lenovo, this 13-inch ultra-light (~2 lbs.) touchscreen-capable business laptop comes equipped with 12th Gen Intel Core vPro processors, a Dolby Vision™ 2K display with 2,160 x 1,350 resolution, Wi-Fi 6E capabilities, and two USB-C Thunderbolt™ 4 ports. It also contains a FHD IR camera, Dolby Atmos® speaker system, and Dolby Voice® hardware and software for an enhanced video conferencing experience. New security/privacy features include user-presence sensors that lock the device when you step away and Computer Vison, which "can auto-dim the screen when it's not in use and alert you when someone is watching over your shoulder."[1]

	 Lenovo ThinkPad X1 Nano Gen 2[2]	 Apple MacBook Pro[3]
Touch screen	✓	✗
Surface area	93.73 sq. in. Smaller footprint	100.08 sq. in.
Weight (with power adapter)	2.63 lbs. Lighter	3.63 lbs.
Connectivity	Wi-Fi 6E	Wi-Fi 6
Bluetooth	5.2	5.0

Figure 1: Lenovo ThinkPad X1 Nano Gen 2 vs. Apple MacBook Pro. Source: Principled Technologies.

Why are ThinkPads popular business laptops?

While we found many web sites touting the design and serviceability advantages Lenovo ThinkPads bring to the business table, *Management Weekly* made the broadest claim: "In the end, it is the combination of unique no-nonsense design, reliability, and functionality that makes these laptops the best business laptops."[4]

Make adapting to digital working environments easier

Two of the biggest challenges for companies supporting a hybrid workplace are productivity and online collaboration. This is especially true for organizations reoptimizing their sales channels for a post-pandemic world where "digital must be treated as just as crucial as field sales."[5]

Before we started hands-on productivity and online collaboration testing, we set the Windows power mode on the Lenovo ThinkPad X1 Nano Gen 2 to "Best performance;" there is no equivalent setting for the 13-inch MacBook Pro. Other than making and verifying that one change, we used out-of-box OEM performance settings for both business laptops:

- Lenovo ThinkPad X1 Nano Gen 2 configured with Windows 11 Pro, a 14-core 12th Gen Intel Core i7-1280P vPro processor, Intel Iris® Xe Graphics, 32 GB of memory, 1 TB of PCIe SSD storage, and a 49.6-Whr battery. MSRP on June 2, 2022: $3,579.00.
- Apple MacBook Pro (13-inch) configured with macOS Monterey, an Apple M1 chip (8-core CPU, 8-core GPU, 16-core neural engine), 16 GB of memory, 1 TB of PCIe SSD storage, and a 58.2-Whr battery. MSRP on June 2, 2022: $1,899.00.

Maxon Cinebench is a benchmark that evaluates computer hardware capabilities by running processor-intensive Cinema 4D software and capturing system performance results.[6] Geekbench 5 measures CPU and GPU performance capabilities "by performing tests that are representative of real-world tasks and applications."[7] We used Speedtest by Ookla to measure the upload and download speeds between both laptops and the test server, through the Chrome web browser.[8] The benchmark scores, hand-timed Microsoft 365 and Adobe Premiere Pro task completion, and IR webcam results we report reflect the specific configurations we tested. Any difference in the configurations you test, as well as browsers, screen brightness, network traffic, or software additions, can affect these results. For more information on these 13-inch business laptops as well as our testing parameters and procedures, see the science behind the report.

Save your back

If you're lucky enough to have an at-home workstation and one that stays in the office—go you! But, before you pat yourself on the back, consider how you move from cubicle to conference room or home office to couch—do you tuck the closed laptop under your arm as you stride down the hall or do you carry it in front of you like an offering to the meeting gods? The bad posture behaviors we practice without thinking from day to day can have a negative effect on our bodies. In 2020, *The Journal of the American Medical Association* (JAMA) reported that insurance companies and individuals spend more on low back pain and neck pain treatments than they do on diabetes or heart disease treatments.[9] So, be mindful when you're walking to that meeting or packing your go-bag with "basic" necessities—your back (and your pocketbook) will thank you later.

Figure 2: Physical attributes of the Lenovo ThinkPad X1 Nano compared to the 13-inch Apple MacBook Pro. Source: Principled Technologies.

Benchmark wins

While where you work is negotiable, getting the job done as quickly and efficiently as possible isn't. For this system responsiveness evaluation, we performed both Cinebench R23 and Geekbench 5 benchmark testing and conducted hands-on Microsoft 365 and Adobe Premiere Pro tasks.

After 30 consecutive Cinebench R23 runs, the Lenovo ThinkPad X1 outperformed the 13-inch MacBook Pro. The Lenovo ThinkPad X1 achieved 44.3 percent higher Cinebench R23 initial performance multi-core scores and 11.8 percent higher sustained performance multi-core scores. The single-core scores were also higher for the Lenovo ThinkPad X1: 9.8 percent higher initial performance and 3.6 percent higher sustained performance.

Resource-intensive applications and you

This is important because, while you may not process images or edit videos, there are plenty of resource-intensive applications you might rely on. If you use any of these resource-intensive apps regularly, pay special attention to the multi-core scores in this report. Higher multi-core scores can translate to speedier response times.

- 3D modeling and rendering programs (AutoCAD, Revit, SolidWorks®)
- Graphics-intensive games (Overwatch®, Star Wars™ Battlefront™)
- Scientific simulation software (MATLAB®)
- Demanding productivity apps (Excel)
- Product development and design software (Behance, TurboCAD, AutoCAD)
- Financial analysis tools (SAP, Excel)

9.8% higher Cinebench R23 initial performance single-core scores

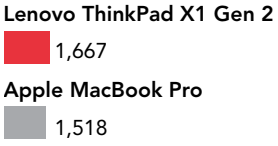

Figure 3: Cinebench R23 initial performance single-core scores after a single run. Higher is better. Source: Principled Technologies.

44.3% higher Cinebench R23 initial performance multi-core scores

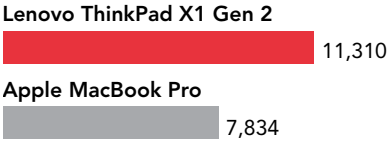

Figure 4: Cinebench R23 initial performance multi-core scores after a single run. Higher is better. Source: Principled Technologies.

3.6% higher Cinebench R23 sustained performance single-core scores

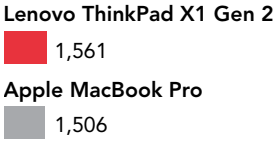

Figure 5: Cinebench R23 sustained performance single-core scores after 30 runs. Higher is better. Source: Principled Technologies.

11.8% higher Cinebench R23 sustained performance multi-core scores

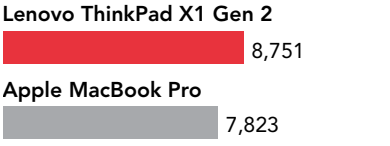

Figure 6: Cinebench R23 sustained performance multi-core scores after 30 runs. Higher is better. Source: Principled Technologies.

Cinebench R23

The Cinebench R23 benchmark we used in this study stresses the system processors. We ran both the single-core and multi-core workloads, so you get an overview of how each business laptop handles essential day-to-day tasks, such as checking email and online research, as well as tackling other, more processor-intensive tasks, such as image processing and video editing.[10]

Geekbench 5

The Geekbench 5 benchmark we used in this study evaluates CPU, GPU, and memory performance. While it is an established benchmark, we couldn't easily tell if the difference in RAM on our two laptops under test affected the performance scores or not. Primate Labs had this to say about the predecessor of Geekbench 5: "Geekbench 4 uses a fixed amount of memory, and scores are partly correlated to the speed at which your processor can access memory used for the workloads. Adding a substantial amount of RAM in excess of the amount that Geekbench uses is not expected to increase your score."[11]

2.2% higher Geekbench 5 initial performance single-core scores

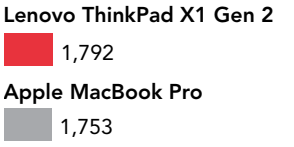

Figure 7: Geekbench 5 Pro initial performance single-core scores. Higher is better. Source: Principled Technologies.

31.2% higher Geekbench 5 initial performance multi-core scores

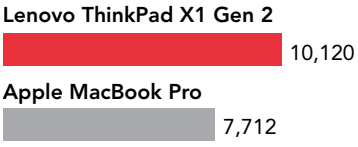

Figure 8: Geekbench 5 Pro initial performance multi-core scores. Higher is better. Source: Principled Technologies.

6.2% higher Geekbench 5 GPU initial performance scores

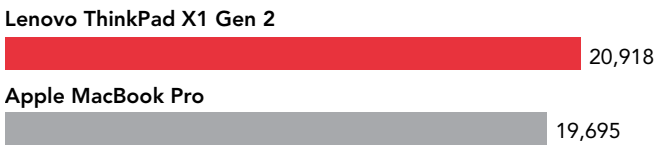

Figure 9: Geekbench 5 Pro GPU initial performance scores. Higher is better. Source: Principled Technologies.

Boost productivity

Productivity and creativity tools such as Microsoft 365 and Adobe Creative Cloud enable companies and their employees to provide better, more efficient service as well as empower communication and collaboration no matter where teammates and clients are working. Making sure your workforce can complete day-to-day projects quickly—whether they're working remotely or in the office—can also help boost productivity.

12.1% less time to send a video as an email attachment

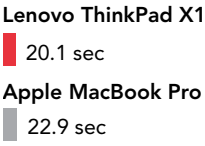

Figure 10: Time to open Outlook and send an email with a 10MB video file attachment. Lower is better. Source: Principled Technologies.

15.6% less time to create a complex data visualization

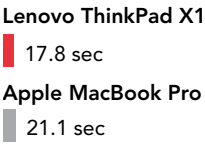

Figure 11: Time to open 10K row Excel sheet and create a 3D 100 percent stacked column. Lower is better. Source: Principled Technologies.

20.2% less time to render an 8K ProRes video project

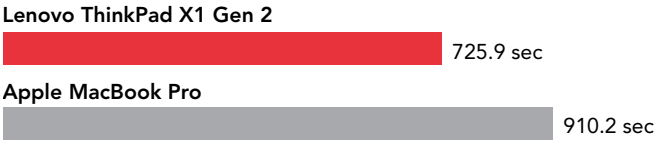

Figure 12: Time to complete an 8K ProRes render in Adobe Premiere Pro. Lower is better. Source: Principled Technologies.

23.7% less time to render a 5K RED video project

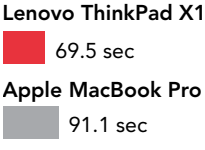

Figure 13: Time to complete a 5K RED render in Adobe Premiere Pro. Lower is better. Source: Principled Technologies.

Speed online collaboration

If you're filling a swimming pool with water, a fire hose will take less time than a garden hose. It's the same with bandwidth, which is measured in megabits per second (Mbps). The more data your laptop transfers per second, the more seamless your browsing experience. While the quality of your internet connection is the primary determining factor for online speed, it is not the only factor. When we measured download and upload speeds for both devices we controlled for internet connection speed, so any difference in the scores can be attributed to the devices themselves. Downloading activities include downloading work files, streaming movies, and shopping online. Uploading activities include sharing content with teammates, video conferencing, and sending emails.[12]

59.1% faster download speeds

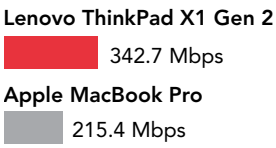

Figure 14: Speedtest by Ookla download speed scores on Chrome. Higher is better. Source: Principled Technologies.

2.8% higher Speedtest by Ookla upload speed scores on Chrome

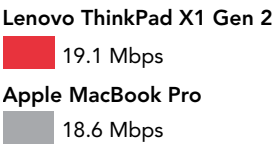

Figure 15: Speedtest by Ookla upload speed scores on Chrome. Higher is better. Source: Principled Technologies.

Feel more connected

When teammates and clients can't be in the same room together, video calls and virtual meetings are the next best thing to being there. The ability to see facial expressions and body language goes a long way to making people feel more connected, productive, and engaged. You be the judge—which IR webcam provided the better-quality image?

Figure 16: Unedited selfie taken in dim light on the Lenovo ThinkPad X1 Gen 2 (15.2 lux). Source: Principled Technologies.

Figure 17: Unedited selfie taken in dim light on the Apple MacBook Pro (13-inch) (15.2 lux). Source: Principled Technologies.

Conclusion

An important tool in any hybrid work environment is a powerful and lightweight business laptop that is responsive and easy to transport. We found that a Lenovo ThinkPad X1 Nano Gen 2 was significantly lighter and slightly more compact than a 13-inch Apple MacBook Pro. Additionally, an X1 Nano Gen 2 powered by an Intel Core i7-1280P vPro processor received higher benchmark scores, completed Microsoft 365 and Adobe Premiere Pro tasks faster, and transferred online files faster in a speedtest than a 13-inch Apple MacBook Pro powered by an Apple M1 chip.

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Read the science behind this report at https://facts.pt/gD7RsUq ▶

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