



Executive summary

Get more for your money with Lenovo ThinkPad, ThinkBook, and ThinkCentre devices

We compared eight Lenovo Think laptops, 2-in-1, and desktops with 12th Gen and 13th Gen Intel Core processors to their Apple Mac counterparts

Whether you're a Microsoft Windows fan or you're used to working in Apple® macOS®, there are a host of options available for your next laptop. If you typically use macOS, though, you may not be aware of what new Windows 11 devices from Lenovo® are bringing to the table. Is it time to consider upgrading to a Lenovo Think business device?

Consumers have many choices when it comes to purchasing business laptops and desktops, and the options we tested cover a wide range of styles and prices. We used multiple workloads and elements of user experience to help you find the right combination of performance and value for the job at hand.



Do more in less time

All ThinkBook laptops, ThinkPad® laptops and 2-in-1, and ThinkCentre® desktops we tested received higher performance-based benchmark scores in multiple areas of focus.



Save big money

Pay up to \$2,047.50 less with the ThinkPad laptops and 2-in-1 we tested.*



Get more business-focused connections*

All ThinkBook laptops, ThinkPad laptops and 2-in-1, and ThinkCentre desktops we tested (except the ThinkBook 13x Gen 2) came equipped with USB-A ports. The Mac devices did not. USB-A is a common connection type for wired and wireless connections to office essentials such as printers, scanners, mice, and external hard drives.¹



Pair with Android or iOS phones and tablets

All ThinkBook laptops, ThinkPad laptops and 2-in-1, and ThinkCentre desktops came equipped with Intel® Unison™, which enables users to pair their Android or iOS smartphones and tablets to the Lenovo Think business devices.² Apple Continuity can pair only iPhones and Macs.³

*System costs on July 12, 2023. Consult associated reports for system configuration details.

What we tested

We compared performance and end-user experiences between eight Lenovo Think business devices powered by the latest Intel® Core™ processors and comparable Apple Mac options. Our hands-on results tell a compelling story.

Lenovo Think devices vs. Apple Mac devices

Laptops, workstations, and a 2-in-1 vs. laptops

ThinkBook 13x Gen 2 vs. **13-inch MacBook Air**
Intel Core i7-1255U CPU vs. *M2 CPU*

Full report: [facts.pt/pp9st4G](#)

ThinkPad T14s Gen 4 vs. **14-inch MacBook Pro**
Intel Core i9-1365U CPU vs. *2023, M2 Max CPU*

Full report: [facts.pt/z9w3QaC](#)

ThinkPad X1 Carbon Gen 11 vs. **14-inch MacBook Pro**
Intel Core i7-1370P CPU vs. *2023, M2 Max CPU*

Full report: [facts.pt/9jDzAqZ](#)

ThinkPad X1 Yoga Gen 8 vs. **14-inch MacBook Pro**
Intel Core i7-1370P CPU vs. *2023, M2 Max CPU*

Full report: [facts.pt/G1EhF9d](#)

ThinkBook 16p Gen 4 vs. **16-inch MacBook Pro**
Intel Core i9-13900H CPU vs. *2023, M2 Max CPU*

Full report: [facts.pt/8gAjkyB](#)

ThinkPad P1 Gen 6 vs. **16-inch MacBook Pro**
Intel Core i9-13900H CPU vs. *2023, M2 Max CPU*

Full report: [facts.pt/k4cQdwR](#)

Desktop vs. desktop

ThinkCentre M90a Pro Gen 4 vs. **24-inch iMac**
Intel Core i9-13900 CPU vs. *M1 CPU*

Full report: [facts.pt/A28TVhw](#)

ThinkCentre M90q Gen 4 Tiny vs. **Mac mini**
Intel Core i9-13900 CPU vs. *2023, M2 Pro CPU*

Full report: [facts.pt/bLWYv9I](#)



Zip through everyday tasks in less time

Because your computer is a key interface with your work, it needs to bring a lot to the table: a comfortable and easy user experience, enough ports for all your accessories, and of course, snappy performance for your everyday tasks. But not everyone uses their devices in the same way. That's why we conducted many different performance-based benchmark tests: Each one stresses the systems in different ways.

CrossMark™ is a benchmark that evaluates how well devices handle day-to-day productivity tasks. WebXPRT 4 is a browser benchmark that measures web-browsing capabilities. In our hands-on comparisons featuring the ThinkPad X1 Carbon Gen 11, ThinkPad X1 Yoga Gen 8, ThinkBook 16p Gen 4, ThinkPad P1 Gen 6, ThinkCentre M90a Pro Gen 4, and ThinkCentre M90q Gen 4 Tiny, the Lenovo systems received higher CrossMark and WebXPRT 4 overall scores than their Apple Mac competitors.

10.5% higher CrossMark overall score

on Lenovo ThinkPad P1 Gen 6 with Intel Core i9-13900H processor vs. 16-inch Apple MacBook pro (2023, M2 Max CPU)

50.6% higher WebXPRT 4 overall score

on Lenovo ThinkCentre M90a Pro Gen 4 with Intel Core i9-13900 processor vs. 24-inch Apple iMac (M1 CPU)

Increase productivity

To analyze the experience users might expect from the systems, we hand-timed how long each took to complete a variety of Microsoft 365 tasks. We were able to complete multiple Microsoft 365 tasks in less time on all of the Lenovo Think business devices we tested compared to the Mac devices we tested.

Handle resource-intensive workloads better

While not everyone works on resource-intensive tasks for days at a time, most of us at least occasionally encounter tasks that are computationally intensive—and some folks, such as engineers or 3D designers or those creating videos, may spend all day using very demanding applications. Higher Cinebench R23 benchmark scores reveal systems that have the power to better handle working with computer-aided design programs, complex spreadsheets, and scientific simulations. In our single-core comparisons, all eight Lenovo Think devices scored higher than their Apple Mac competitors in one area: Cinebench R23 single-core testing. Additionally, in laptop and 2-in-1 tests, the ThinkBook 13x Gen 2, ThinkPad X1 Carbon Gen 11, and ThinkPad X1 Yoga Gen 8 2-in-1 also received higher Cinebench R23 single-core scores under a sustained workload than their MacBook Air and MacBook Pro competitors.

12.3% higher Cinebench R23 sustained single-core scores

on Lenovo ThinkPad X1 Carbon Gen 11 with Intel Core i7-1370P processor vs. Apple MacBook Pro (2023, M2 Max CPU)

26.2% less time to insert a 3D 100% stacked column chart in Excel

on Lenovo ThinkPad 14s Gen 4 with Intel Core i9-1365U processor vs. 14-inch Apple MacBook Pro (2023, M2 Max CPU)

In mobile workstation tests, the ThinkBook 16p Gen 4, and ThinkPad P1 Gen 6 pulled ahead of their 16-inch MacBook Pro (2023, M2 Max CPU) competitors in Cinebench R23 single-core and multi-core scores, as well as delivering higher Cinebench R23 sustained single-core and sustained multi-core testing.

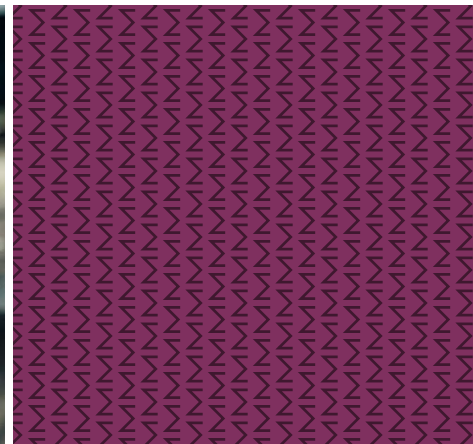
Up to 27.7% higher Cinebench R23 sustained single- and multi-core scores

on Lenovo ThinkBook 16p Gen 4 with Intel Core i9-13900H processor vs. Apple MacBook Pro (2023, M2 Max CPU)

In desktop testing, both ThinkCentre desktops received higher Cinebench R23 single-core and multi-core scores than their iMac and Mac mini competitors.

Up to 2.6X the Cinebench R23 single- and multi-core scores

on Lenovo ThinkCentre M90a Pro Gen 4 with Intel Core i9-13900 processor vs. 24-inch Apple iMac (M1 CPU)





Improve video-conferencing experiences

With many companies embracing remote and hybrid work models, the video-conferencing tools and audio components we rely on to connect with widespread participants are more important than ever. In all three ThinkPad comparisons, plus our comparisons featuring the ThinkBook 16p Gen 4 and ThinkCentre M90a Pro Gen 4, the Lenovo systems provided better mic noise reduction and louder speaker volume with less CPU usage during Zoom meetings than the Apple Mac systems to which we compared them.

Up to 83.3% better system maximum CPU utilization while using Zoom

on Lenovo ThinkPad X1 Yoga Gen 8 with Intel Core i7-1370P processor vs. 14-inch Apple MacBook Pro (2023, M2 Max CPU)

Solve the big problems with AI

To see how powerful CPU and GPU processors could boost a mobile workstation's AI-processing strength, we ran the offline scenario of the MLPerf™ ResNet-50 machine learning model in two of our eight comparisons. In the first of these evaluations, a Lenovo ThinkBook 16p Gen 4 with a 13th Gen Intel Core i9-13900H processor processed almost 11 times as many ResNet-50 samples per second as an Apple MacBook Pro (2023, M2 Max CPU). In our second evaluation, a Lenovo ThinkPad P1 Gen 6 with a 13th Gen Intel Core i9-13900H processor processed almost 18 times as many ResNet-50 samples per second as the Apple MacBook Pro.

17.6X as many ResNet-50 samples per second

with Lenovo ThinkPad P1 Gen 6 with Intel Core i9-13900H processor vs. 16-inch Apple MacBook Pro (2023, M2 Max CPU)

While these numbers are impressive for data scientists, it is worth noting that both the Lenovo ThinkBook 16p Gen 4 and Lenovo ThinkPad P1 Gen 6 also scored significantly better in several content creation benchmarks (Blender, HandBrake, Maxon Redshift 3D Renderer, and Topaz Video AI), which could be a boon for high-powered professionals and creatives.

Up to 86.1% more Blender 3.6 samples per minute

with Lenovo ThinkPad 16p Gen 4 with Intel Core i9-13900H processor vs. 16-inch Apple MacBook Pro (2023, M2 Max CPU)

Sustainability

One of the ways Lenovo is committed to reaching net-zero emissions by 2050 is through providing environmentally conscious products that arrive in minimal recycled or biodegradable packaging materials.⁴ Most of the systems we received arrived in sustainable packaging.

Conclusion

When it comes to selecting a laptop, 2-in-1, or desktop for you or your workforce, there are many factors at play. In our hands-on evaluation of Lenovo Think business devices with 12th and 13th Gen Intel Core processors and similarly configured Apple Mac devices, we found the Lenovo Think systems offered a range of advantages in performance and user experience.

1. The Sacramento Bee, "USB A vs. USB C: Which Office Devices Use Each?" accessed December 13, 2023, <https://www.sacbee.com/reviews/usb-a-vs-usb-c/>.
2. Intel, "Intel® Unison™," accessed December 13, 2023, <https://www.intel.com/content/www/us/en/products/docs/unison/overview.html>. Intel Unison is currently available on Windows-based PCs to pair with Android- or iOS-based phones and tablets. Some premium features are only available on eligible designs. All devices must run a supported OS version. See [intel.com/performance-wireless](https://www.intel.com/performance-wireless) for details.
3. Make Use Of, "How to Use Your Mac and iPhone Together With Apple's Continuity," accessed December 13, 2023, <https://www.makeuseof.com/tag/mac-iphone-together/>.
4. Lenovo, "Environmental, Social and Governance Report," accessed December 18, 2023, <https://investor.lenovo.com/en/sustainability/reports/FY2023-lenovo-sustainability-report.pdf>.



Read the full reports:

Lenovo ThinkBook
13x Gen 2 vs. 13-inch
Apple MacBook Air

facts.pt/pp9st4G

Lenovo ThinkPad X1
Carbon Gen 11 vs. 14-
inch Apple MacBook Pro

facts.pt/9jDzAqZ

Lenovo ThinkBook
16p Gen 4 vs. 16-inch
Apple MacBook Pro

facts.pt/8gAjkyB

Lenovo ThinkCentre
M90a Pro Gen 4 vs.
24-inch Apple iMac

facts.pt/A28TVhw

Lenovo ThinkPad T14s
Gen 4 vs. 14-inch
MacBook Pro

facts.pt/z9w3QaC

Lenovo ThinkPad X1
Yoga Gen 8 vs. 14-inch
Apple MacBook Pro

facts.pt/G1EhF9d

Lenovo ThinkPad
P1 Gen 6 vs. 16-inch
Apple MacBook Pro

facts.pt/k4cQdwR

Lenovo ThinkCentre
M90q Gen 4 Tiny vs.
Apple Mac mini

facts.pt/bLWYv9I



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