Discover faster web performance at a lower cost with the HP Elite Mini 800 G9 Desktop PC powered by a 13th Gen Intel Core processor

vs. the Apple Mac mini powered by an Apple M2 Pro processor

For users who spend their workdays online—researching data, monitoring analytics, using productivity apps, collaborating across teams, and more—browsing speed can make or break the day. When pages and apps take longer to load, users can lose focus on their task, potentially taking a long time to return to their workflow. In fact, one study demonstrated that when employees are distracted, it can take up to 23 minutes to return their focus to what they'd been working on.[1] A speedy browsing experience, on the other hand, doesn't inhibit the workflow. Users can remain productive without the repercussions of lost attention.

At Principled Technologies, we put two mini desktop systems to the test with web-based and productivity benchmarks: the HP Elite Mini 800 G9 Desktop PC with an Intel® Core™ i7-13700T processor and the Apple® Mac mini® with an Apple M2 Pro processor. Not only did the HP system achieve higher WebXPRT 4 scores, our comparison also revealed that it cost $450 less than the Apple system. We found that it also offered more connection ports and took up less space. Read on for more about the comparison, as well as a closer look at security and manageability features from Intel and HP.

Free up budget resources

With a 28.1% lower price tag*

Stay on task with faster web browsing

With an up to 16.7% higher WebXPRT 4 score*

Optimize your workspace

With a 20.0% more compact system*

*HP Elite Mini 800 G9 Desktop PC with an Intel Core i7-13700T processor vs. Apple Mac mini with an Apple M2 Pro processor

Our comparison

We tested the following mini desktop systems:

- HP Elite Mini 800 G9 Desktop PC with an Intel Core i7-13700T processor and Intel UHD Graphics 770 running Windows 11 Pro
- Apple Mac mini with an Apple M2 Pro 12-core processor and Apple M2 19-core GPU running macOS Sonoma

In Table 1, we show other specifications and features of the systems we tested, as well as their costs as of September 8, 2023. Not only was the HP Elite Mini 800 G9 lighter and more compact, meaning that users could enjoy more space on their desks, but it also offered a larger variety of ports at both the front and back. Additionally, as we show below, its list price was $450—or 28.1 percent—lower than that of the Apple Mac mini.

Table 1: Features and costs, in USD, of the two systems we tested. Source: Principled Technologies.

	HP Elite Mini 800 G9 Desktop PC	Apple Mac mini
Price	$1,149.00[2]	$1,599.00[3]
Surface area (sq. in.)	48.02	60.06
Weight (lb.)	2.54	2.81
Front ports	1x headset connector 1x SuperSpeed USB Type-A (10Gbps signaling rate) 1x SuperSpeed USB Type-A (10Gbps signaling rate) for charging 1x SuperSpeed USB Type-C™ (20Gbps signaling rate)	None
Back ports	1x power connector 1x RJ-45 1x HDMI® 2.1 3x SuperSpeed USB Type-A (10Gbps signaling rate) 2x DisplayPort™ 1.4 1x VGA	1x power connector 1x RJ-45 1x HDMI 2.1 2x USB-A ports (up to 5Gb/s) 4x Thunderbolt™ 4 ports 1x 3.5mm headphone jack
Wi-Fi	Intel Wi-Fi 6E AX211 (2x2)	Wi-Fi 6E (802.11ax)
Bluetooth	Yes	Yes
Memory (GB)	16	16
Storage (GB)	512	512

For our performance tests, we ran a browser-based benchmark test, WebXPRT 4, as well as a productivity benchmark, CrossMark. To review our detailed configurations, methodologies, and results, see the ***science behind the report***.

About the HP Elite Mini 800 G9

According to HP, this system "delivers the high performance needed to develop complex presentations, crunch big numbers, and quickly create compelling content."[4] Equipped with Intel processors, DDR5 memory, and HP Wolf security, the HP Elite Mini 800 G9 Desktop PC is also a conscientious choice: at least 50 percent of the plastic it comprises is recycled.[5]

To learn more, visit ***https://www.hp.com/us-en/shop/pdp/hp-elite-mini-800-g9-desktop-pc-p-88u16ua-aba-1***.

About the Intel Core i7-13700T processor

According to Intel, new 13th Gen Intel Core i7 processors "power high-end PCs with excellent CPU performance for discrete-level graphics and AI acceleration."[6] The Intel Core i7-13700T processor features 16 cores (eight performance cores and eight efficient cores), 24 threads, a max turbo frequency of 4.90 GHz, and a 30MB Intel Smart Cache. It comes equipped with advanced technologies such as Intel Deep Learning Boost and Intel Hyper-Threading, as well as a host of security features. To learn more, visit ***https://www.intel.com/content/www/us/en/products/details/processors/core/i7.html***.

Performance comparison

WebXPRT—a free, industry-standard browser benchmark—compares the performance of web-enabled devices when executing real-world tasks. It contains scenarios that mirror everyday work, such as enhancing photos, encrypting notes, graphing sales, and more. A higher WebXPRT 4 score indicates that a system offers a more responsive web browsing experience, which can benefit workers across industries.

We ran the test using each system's native browser—Microsoft Edge on the HP Elite Mini and Safari on the Apple Mac mini—as well as on Google Chrome. As Figures 1 and 2 show, the HP system outperformed the Apple system in both the native web browser comparison and the Chrome comparison. This means that with a less expensive system, users could browse the web with less waiting and fewer interruptions, which can potentially help their focus and productivity.

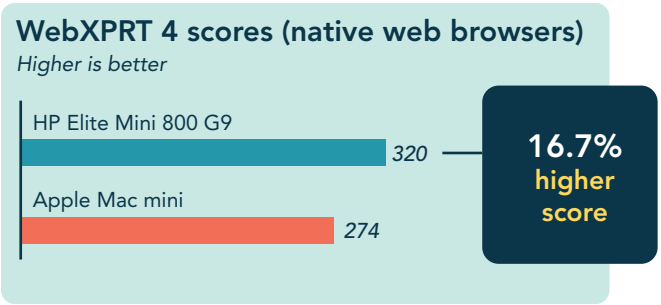


Figure 1: WebXPRT 4 scores with each system running its native web browser: Edge for the HP system and Safari for the Apple system. Higher is better. Source: Principled Technologies.

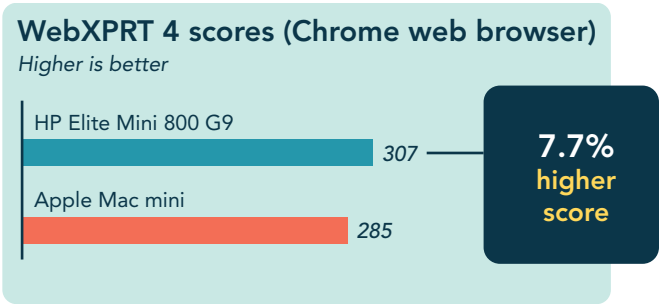


Figure 2: WebXPRT 4 scores with each system running the Chrome web browser. Higher is better. Source: Principled Technologies.

For another look at system performance, we ran CrossMark, "an easy to run native cross-platform benchmark that measures the overall system performance and system responsiveness using models of real-world applications."[7] It reports a single overall score, as well as sub-scores from three scenarios: Productivity, Creativity, and Responsiveness. The Productivity scenario reflects everyday office work, such as word processing and manipulating spreadsheets, while the Creativity scenario mirrors specialized creative work, such as editing photos and video. The Responsiveness scenario combines elements from the other two scenarios, including opening and saving files.[8] Figure 3 shows that while the Apple Mac mini received a higher Overall and Creative rating, the HP Elite Mini, at a $450 lower cost, performed comparably in the Productivity and Responsiveness scenarios.

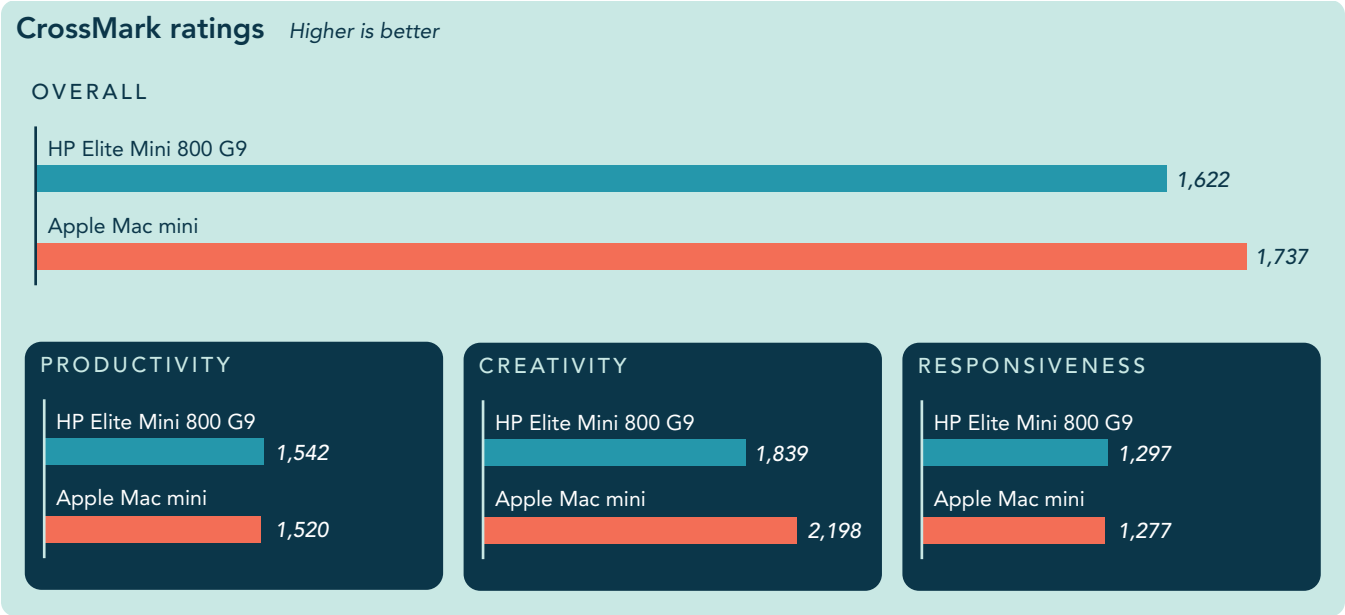


Figure 3: CrossMark overall ratings and sub-score ratings. Note that the overall chart and sub-score charts use different x-axis scales. Please be mindful of each graph's data range as you compare. Source: Principled Technologies.

Stay connected with more ports

In addition to our performance testing, we found that the HP Elite Mini featured four ports on the front and nine ports on the back, for a total of 13 ports (Figure 4). In contrast, the Apple Mac mini offered no front ports and 10 back ports. With these capabilities from the HP Elite Mini, users could connect to more accessories and devices without specialized adapters.

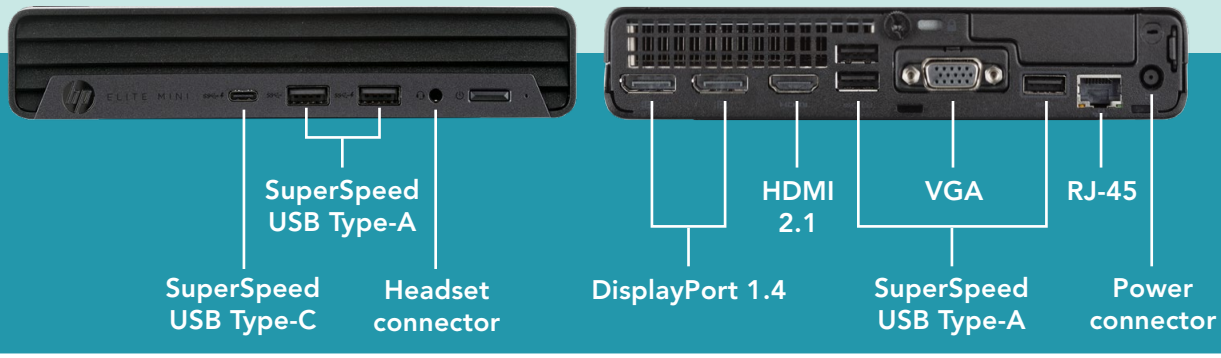


Figure 4: The front and back view of the HP Elite Mini 800 G9 Desktop PC, which provides 15 ports in total. Source: Principled Technologies.

Secure your system with Intel and HP features

Intel security

Hardware-enabled security from Intel includes products and features at three levels:

- **Foundational Security** aims to ensure "a critical base of protection across the platform, focused on identity and integrity."[9] These products include Intel Crypto Acceleration, Intel Advanced Encryption Standard New Instructions (Intel AES-NI), and more.
- **Workload and Data Protection** provides "a trusted execution environment for hardware-isolated protection of data in use," and includes products such as Intel Secure Key and Intel Software Guard Extensions (Intel SGX).[10]
- **Software Reliability** features, such as Intel Control-Flow Enforcement Technology (Intel CET), add "more layers of verification" by protecting software and moving certain security capabilities to hardware.[11]

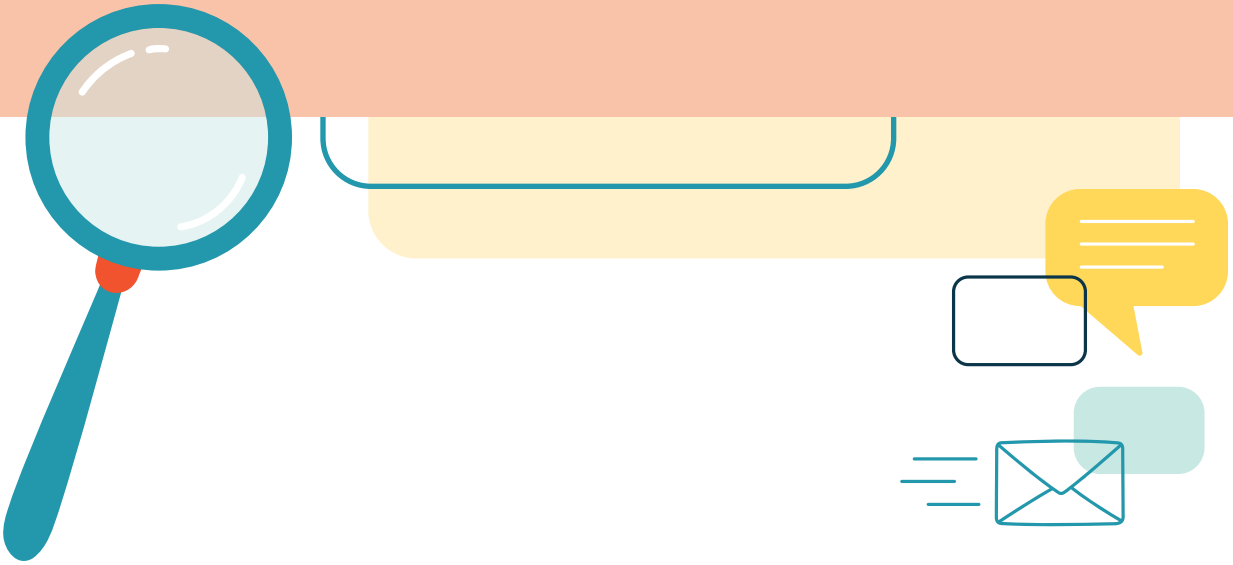
For more information, visit ***https://www.intel.com/content/www/us/en/security/hardware/hardware-security-overview.html***.

HP Wolf Security

HP offers "integrated endpoint security," which "combines unique, CPU-enforced isolation technology with security features embedded into motherboard hardware to form a fortress of protection most threats can't penetrate."[12] HP Wolf Security products include:

- **Sure Click Enterprise** aims to stop phishing, ransomware, and browser threats for large companies.
- **HP Wolf Pro Security**, designed for small and medium-sized businesses, uses isolation technology and gives control of PC management from the cloud.
- **Sure Access Enterprise** uses endpoint isolation to combat phishing attempts on privileged access users such as system administrators.
- **HP Wolf Protect and Trace** enables admins to locate, lock, and wipe a lost laptop, helping to prevent data from falling into malicious hands [13]

For more information, visit ***https://www.hp.com/us-en/security/products.html.***



About Intel Transparent Supply Chain

According to Intel, "Today's supply chains are increasingly complex, multi-layered, global, and optimized for speed and cost."[14] From the manufacturer to the end user, Intel has implemented policies and tools to secure authentic parts for their platform. With features such as digitally signed statements of conformance, component-level traceability, and the Auto Verify tool's data comparison, Intel Transparent Supply Chain can help "assure resellers and end-customers that their products come with a level of accountability and traceability."[15]

To learn more, visit ***https://www.intel.com/content/www/us/en/security/security-practices/transparent-supply-chain.html***.

Spotlight on PC fleet manageability

When IT teams effectively manage a device fleet, they can minimize data loss, security threats, and system downtime. For fleets that utilize multiple operating systems—for example, a company where some workers use Windows and others use macOS—rolling out updates can be more complicated and time consuming for IT admins. They may also need to use multiple management tools to achieve the level of control and security they need for each OS.

On the other hand, IT admins can save time and hassle when updates need target only one operating system and security policies remain consistent across the fleet. In this case, because admins need to be familiar with just a single operating system, organizations could potentially reduce the cost of training. And with the right tool, they could also save on licensing fees by using a single management solution on devices with the same OS.

The Intel vPro Enterprise platform offers hardware-based remote device management (RDM), which IT admins can use to update OS and software, implement security patches, and troubleshoot device issues remotely. According to Intel, all Intel vPro Enterprise Windows-based PCs come equipped with Intel Active Management Technology (Intel AMT) and Intel Endpoint Management Assistant (Intel EMA), both of which can empower IT teams with tools to secure and manage devices remotely.[16]

Learn more here: ***https://www.intel.com/content/www/us/en/business/enterprise-computers/resources/remote-management.html***.

Intel vPro features for businesses

The Intel vPro platform seeks "to help your business thrive in a rapidly changing digital world."[17] In addition to the management features we mention above, the Intel vPro platform offers Intel Hardware Shield for security, "industry-leading performance" from the Intel Core processors "at the heart of the Intel vPro platform," and platform validation from the Intel Stable IT Platform Program (Intel SIPP).[18]

Additionally, Forrester Consulting found that an organization using the vPro platform could see a 198 percent return on investment (ROI), savings of up to $650K per year on third-party licensing, and more: ***https://www.intel.com/content/www/us/en/business/enterprise-computers/resources/vpro-platform-tei-case-study-2021.html***.

Conclusion

In our hands-on testing, the 13th Gen Intel Core processor-powered HP Elite Mini 800 G9 Desktop PC achieved higher WebXPRT scores than the Apple M2 processor-powered Apple Mac mini. It also delivered comparable performance on two CrossMark benchmark sub-tests. At a 28.1 lower price, the HP system offered a greater variety of ports at the front and back while also taking up less space. These benefits, combined with security and manageability features, could make the HP Elite Mini 800 G9 Desktop PC a good fit for your workforce.

1. "It takes 23 minutes to regain focus after a distraction: Task Switching," accessed October 16, 2023, *https://www.ideatovalue.com/curi/nickskillicorn/2023/07/it-takes-23-minutes-to-regain-focus-after-a-distraction-task-switching/*.
2. "HP Elite Mini 800 G9 Desktop PC," accessed September 8, 2023, *https://www.hp.com/us-en/shop/pdp/hp-elite-mini-800-g9-desktop-pc-p-88u16ua-aba-1*.
3. "Mac mini," accessed September 8, 2023, *https://www.apple.com/shop/buy-mac/mac-mini/apple-m2-pro-with-10-core-cpu-and-16-core-gpu-512gb*.
4. "HP Elite Mini 800 G9 Desktop PC," accessed October 12, 2023, *https://www.hp.com/us-en/shop/pdp/hp-elite-mini-800-g9-desktop-pc-p-88u16ua-aba-1*.
5. "HP Elite Mini 800 G9 Desktop PC."
6. "Intel® Core™ i7 Processors," accessed October 12, 2023, *https://www.intel.com/content/www/us/en/products/details/processors/core/i7.html*.
7. "CrossMark," accessed October 12, 2023, *https://bapco.com/products/crossmark/*.
8. "BAPCo® CrossMark® User Guide," accessed October 12, 2023, *https://bapco.com/wp-content/uploads/2023/04/bapco_crossmark_user_guide_v1.6.pdf*.
9. "Hardware-Enabled Security Technology," accessed October 13, 2023, *https://www.intel.com/content/www/us/en/security/hardware/hardware-security-overview.html*.
10. "Hardware-Enabled Security Technology."
11. "Hardware-Enabled Security Technology."
12. "HP Wolf Security Products," accessed October 13, 2023, *https://www.hp.com/us-en/security/products.html*.
13. "HP Wolf Security Products."
14. "Transparent Supply Chain," accessed October 13, 2023, *https://www.intel.com/content/www/us/en/security/security-practices/transparent-supply-chain.html*.
15. "Transparent Supply Chain."
16. "Remote Device Management for Business," accessed October 16, 2023, *https://www.intel.com/content/www/us/en/business/enterprise-computers/resources/remote-management.html*.
17. "An Unrivaled Business PC Platform," accessed October 16, 2023, *https://www.intel.com/content/www/us/en/architecture-and-technology/vpro/overview.html*.
18. "An Unrivaled Business PC Platform."

Read the science behind this report at https://facts.pt/V8pFtR0 ▶

Principled Technologies®

Facts matter.®

This project was commissioned by Intel.