The Dell Precision 3540

Stronger SPECworkstation 3 performance

7/7

Higher scores than the Lenovo devices in 7 of 7 tests

5/7

Higher scores than the HP devices in 5 of 7 tests

8 1/2 hours of battery life

Up to 1 hour longer than the other mobile workstations we tested, and long enough to get through the workday

Boosting your team's productivity with new entry-level mobile workstations

The Dell Precision 3540 had the longest battery life and showcased stronger benchmark performance than four workstations from HP and Lenovo

At Principled Technologies, we measured the workload performance and battery life of five entry-level mobile workstations:

- Dell Precision 3540
- HP ZBook 14u G6
- HP ZBook 15u G6
- Lenovo ThinkPad P43s
- Lenovo ThinkPad P53s

The Dell Precision 3540 mobile workstation had the longest battery life of the devices we tested at 8 hours, 29 minutes. It also displayed better benchmark performance for most of the use cases we investigated, including general operations, financial services, and product development workloads.

Businesses seeking PCs that deliver solid performance for mission-critical tasks and robust battery life should consider entry-level mobile workstations. Read on to learn about our hands-on tests and see how the workstations we tested performed in each area.

What's a mobile workstation?

A mobile workstation is a notebook computer with higher-end features not typical of standard laptop fare. These features may include a larger memory capacity or more powerful CPUs and GPUs. For example, the Dell Precision 3540 we tested contains a four-core, 8th Generation Intel Core™ i7 8665U processor, 16 gigabytes of RAM, an AMD Radeon Pro WX2100 graphics processor, and 512 GB of storage in an ultra-fast NVMe SSD.

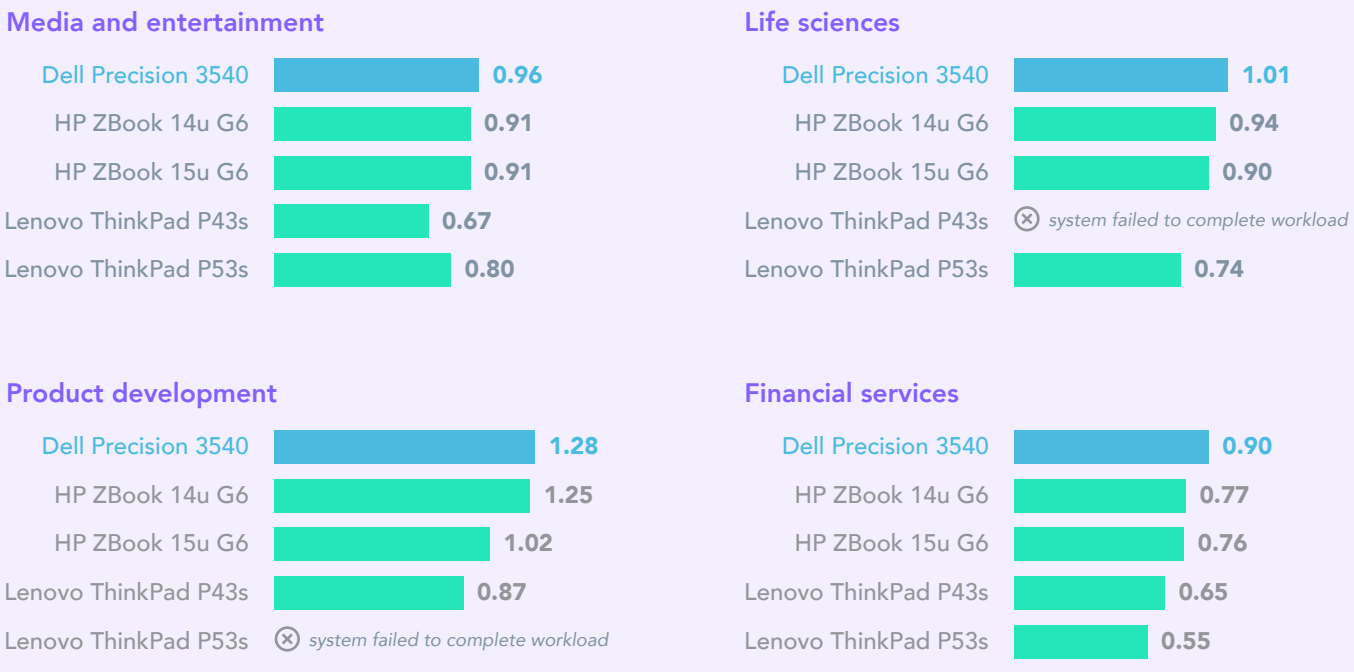
Testing workload performance

To get a sense of how each mobile workstation might perform in different real-world scenarios, we used SPECworkstation 3 for testing. The SPECworkstation 3 benchmark suite divides its tests into seven categories that represent common workloads in a variety of use cases and industries, such as media and entertainment, science, engineering, product development, finance, and oil and gas. The higher the workload score, the faster you would expect a device to perform during real-world usage, which could in turn facilitate productivity among your employees.

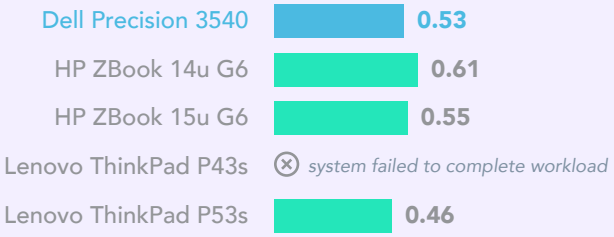
Below is a chart showing how each system fared on the workloads. The Dell Precision 3540 showcased better performance than all four HP and Lenovo devices in five of the seven workload categories. Note that in several cases, a Lenovo workstation was unable to complete the workloads.

The Dell Precision 3540 showed markedly better performance in the financial services category, where it bested the Lenovo ThinkPad P53s by 63 percent—a showing that could allow your company to process computations such as Monte Carlo simulations or the Black-Scholes pricing model faster, which could in turn enable your company to make informed investment decisions sooner. In the product development category, the Dell Precision 3540 beat the ThinkPad P43s by 47 percent, suggesting an ability to solve complex design calculations faster. The Dell Precision 3540 showed stronger performance than the two HP workstations on the general operations test, which could translate to faster performance for CPU and storage-intensive work overall.

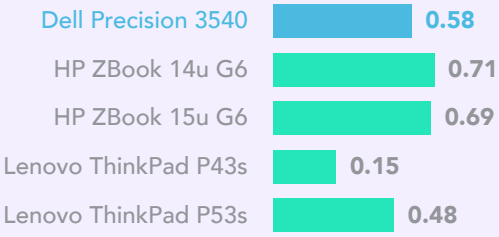
SPECworkstation 3.0.2 benchmark results (higher is better)



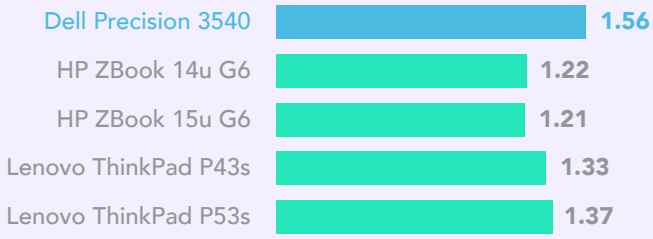
Energy



GPU compute



General operations

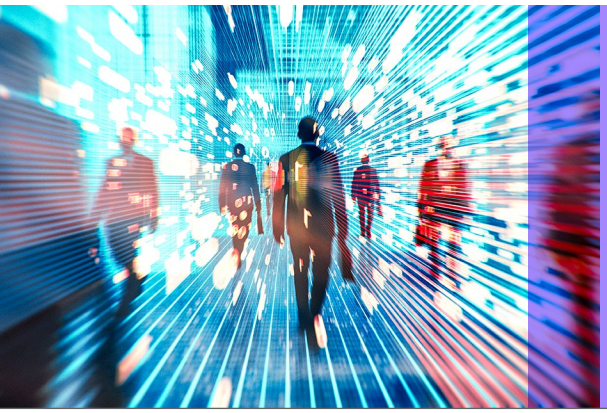


About SPECworkstation 3

SPECworkstation 3 is a benchmark suite that tests a device's processor, graphics card, I/O, and memory bandwidth over a series of 30 workloads comprising nearly 140 individual tests. The SPEC organization based the tests in each workload on real-world applications relevant to key industries, such as the popular 3D modeling programs Maya® and 3ds Max® and the Monte Carlo simulation for finance. In addition to measuring a number of general operations, SPECworkstation 3 includes tests for the following use cases:

- Media and entertainment (video rendering and 3D graphics)
- Product development (CAD, CAM, and CAE software)
- Life sciences (medical imaging and molecular simulations)
- Financial services (pricing models and simulations)
- Energy (oil and gas)

To learn more, visit https://www.spec.org/gwpg/wpc.static/workstation3-info.html.



Better performance in less time with Intel Turbo Boost

Intel Turbo Boost automatically raises the operating frequency of certain processor cores to improve performance during demanding tasks. We found that even though the Dell Precision 3540 spent less time in Turbo Boost mode compared to, say, the HP Zbook 14u G6, it still had better performance in most benchmark use cases.

Dell Precision 3540

According to Dell, mobility was top of mind for the design of its Precision 3540 mobile workstation. The form factor is 0.8 inches thin and has a starting weight of just 4.04 pounds. The Precision 3540 features an optional Windows Hello fingerprint reader and a camera shutter to protect users' privacy.[1] To learn more, visit https://www.dell.com/en-us/work/shop/workstations-isv-certified-dell/precision-3540-mobile-workstation/spd/precision-15-3540-laptop.

Battery life

A system with a long battery life is attractive—but if it means the system can't easily handle complex work, it will be of little value to your organization. We used MobileMark 2018 to measure each mobile workstation's battery life and performance simultaneously. According to BAPCo, simultaneous results shows "how well a system design addresses the inherent trade-offs between performance and power management."[2]

Below are our results for the MobileMark tests. Note that we used the best battery configuration available for each system. Running for 8 hours, 29 minutes and achieving a performance score of 1,127, the Dell Precision 3540 had the longest battery life and highest performance of the five mobile workstations we tested.

MobileMark 2018 battery life (higher is better)

Conclusion

When choosing new entry-level mobile workstations for your business, you want to be sure employees can excel at their tasks. The Dell Precision 3540 showed better SPECworkstation 3 performance than two Lenovo devices in all seven tests, and beat the two HP devices in five of seven. These tests present common use cases spanning media and entertainment, product development, life sciences, financial services, general operations and more. The Dell Precision 3540 was particularly strong when compared to the Lenovo workstations, which occasionally were unable to complete certain workload tasks. This higher performance could mean that users who have to complete video transcoding tasks, complex calculations, or other computationally or storage-intense work would have a better experience with the Dell Precision 3540 than with the mobile workstations from HP and Lenovo.

In addition, the Dell device maintained high performance while having a longer battery life than the competitors at nearly eight-and-a-half hours. A longer battery life can give employees the flexibility to work in several locations without worrying about being tethered to a desk or power outlet.

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1 "Precision 3540 Mobile Workstation | Dell USA", accessed October 2, 2019, https://www.dell.com/en-us/work/shop/workstations-isv-certified-dell/precision-3540-mobile-workstation/spd/precision-15-3540-laptop.

2 "MobileMark 2018 – BAPCo," accessed October 2, 2019, https://bapco.com/products/mobilemark-2018/.

Read the science behind this report at http://facts.pt/e64xkp7 ►

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