



## A faster, longer running, entry-level mobile workstation

The Dell Precision 3541 had a longer battery life and performed better during benchmark tests compared to a similar mobile workstation from HP

At Principled Technologies, we assessed the performance and battery life of two mobile workstations: the Dell Precision 3541 and the HP ZBook 15v. In our tests, the Dell workstation showed stronger performance on seven workloads based on real-world use cases. It also had a battery life that was nearly two and a half hours longer than that of the HP mobile workstation.

Whether your business is involved in finance, entertainment, science and engineering, or other industries, your employees need mobile workstations that can help them power through their work without breaking the bank. Battery life is also an important factor to consider, especially if your employees are often on the go and don't always have access to a power outlet.

Read on to learn more about our hands-on tests and to see how the workstations performed in each area.



The Dell Precision 3541

### Stronger benchmark performance



The Dell Precision 3541 beat the HP ZBook 15v on six of seven workloads and tied on the seventh



9+ hour battery life

Long enough to last a full workday and 2 hours, 26 minutes longer than the HP ZBook 15v

## 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 3541 we tested contains a six-core, 9th Generation Intel Xeon E-2276M processor, 16 gigabytes of RAM, an NVIDIA Quadro P620 graphics processor, and 512 GB of storage in an ultra-fast NVMe SSD.



## Strong performance in all seven workloads

We used SPECworkstation 3 to assess each mobile workstation in seven key performance areas that included video rendering and 3D graphics, CAD software, medical imaging, and more. Below are the results of the SPECworkstation 3 tests—note that a higher benchmark score suggests being faster at the real-world work that's imperative to your business goals.

The Dell Precision 3541 showcased better performance than devices in six of the seven workload categories, and tied in the financial services workload. The Dell Precision 3541 showed notably stronger performance in the Energy and GPU compute categories, beating the HP ZBook 15v by 20 and 17 percent respectively. Stronger performance in the Energy tests could mean faster signal processing (especially with computing Fourier transforms), while the better GPU compute performance could enable employees working in graphics-heavy industries to render complex visuals faster.

### SPECworkstation 3.0.2 benchmark results (higher is better)

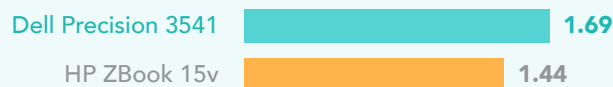
#### Media and entertainment



#### Life sciences



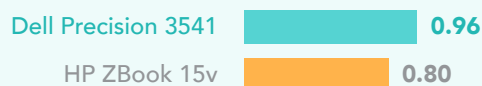
#### Product development



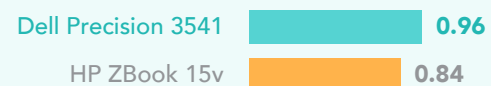
#### Financial services



#### Energy



#### GPU compute



#### General operations



## 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 like those in the SPECworkstation 3 benchmark suite. We found that even though the Dell Precision 3541 spent an average of eight percent less time in Turbo Boost mode, it still performed better than the HP device, and even finished the benchmarks more than an hour earlier.

### SPECworkstation 3 test duration - Average (hrs:min:sec) (lower is better)



### Percentage of time spent in Turbo Boost mode (average) (lower is better)



## 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 that financial organizations often use. 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>.

## Dell Precision 3541 CAD Workstation

According to Dell, performance and affordability were key parts of their vision for the Dell Precision 3541. The mobile workstation features NVIDIA Quadro graphics, the latest 9th Generation Intel® Core™ or Xeon® processors, and a variety of features to protect data and privacy, including an optional Windows Hello fingerprint scanner, a camera lens shutter, and software to prevent severe data loss from memory failure.<sup>1</sup> To learn more, visit <https://www.dell.com/en-us/work/shop/workstations-isv-certified-dell/precision-3541/spd/precision-15-3541-laptop>



## Work wherever the job takes you

A key advantage of having a mobile workstation is being able to take it wherever you need to be, whether that's a crowded airport, the passenger seat of a car, or outdoors in the field with no outlet in sight. That's why having a mobile workstation with a long battery life is so attractive: imagine the frustration of having to stop work in the middle of a good flow because your mobile workstation is quickly losing charge.

We used MobileMark 2018 to measure each system's battery life. MobileMark 2018 takes an "active" measurement of battery life, running a workload that assesses performance and battery life simultaneously. According to BAPCo, this shows "how well a system design addresses the inherent trade-offs between performance and power management," meaning its battery life figures more strongly suggest real life performance than an inflated "idle" battery life measurement.<sup>2</sup>

Below are our results for the MobileMark tests (Note that we used the best battery configuration available for each system). With just 6 hours, 48 minutes of power, the HP ZBook 15v wouldn't get you through a full work day. The Dell Precision 3541, however, ran for 9 hours, 14 minutes—nearly two-and-a-half hours longer. The Dell mobile workstation also achieved a 15 percent better performance score, suggesting the workstation would enable employees to accomplish more hardware-demanding work for longer.

### MobileMark 2018 battery life (higher is better)

#### Median battery life (hours:minutes)



#### Performance qualification





## Conclusion

The mobile workstations you choose for your business should be able to keep up with the complexities of your employees' work. In our tests, the Dell Precision 3541 showed stronger performance than an HP ZBook 15v on a suite of SPECworkstation 3 benchmark tests. The benchmarks spanned use cases and industries that include media and entertainment, science and medicine, finance, and oil and gas, suggesting the Dell Precision 3541 would be better poised to handle a wide variety of processor and graphics-intensive work.

In addition, the Dell mobile workstation maintained better performance during an active battery life test, managing to perform the MobileMark 2018 workload for more than nine hours—two-and-a-half hours longer than the HP mobile workstation. A longer battery life can give employees the freedom and flexibility to work on the road, in the field, or even just around the corner.

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- 1 "Precision 3451 CAD Workstation Laptop with 9th Gen Intel | Dell USA," accessed October 4, 2019, <https://www.dell.com/en-us/work/shop/workstations-isv-certified-dell/precision-3541/spd/precision-15-3541-laptop>.
  - 2 "MobileMark 2018 – BAPCo," accessed October 4, 2019, <https://bapco.com/products/mobilemark-2018/>.

Read the science behind this report at <http://facts.pt/6iq0pkf> ►



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