



A Guide to Efficient PC Performance Testing for Enterprise IT

HOW BENCHMARKING SAVES TIME AND MONEY

Empowering Trust[®]



Introduction

PC performance testing can be complex and time-consuming. As an IT professional, you may face unique challenges each day. You likely need to know how to:

- Standardize PC purchasing decisions based on performance
- Validate new hardware and Windows configurations to determine system stability
- Quantify the performance impact of OS image changes and application updates
- Identify poorly performing systems
- Test and measure the real-world performance of PCs against baselines

Standardizing your performance testing and reporting can help simplify these tasks and processes. That's where benchmarks come in.

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What is a benchmark?

A benchmark is a test used to see how well a product performs a specific function and how it compares to similar products. Benchmarks provide a quantitative differentiator for PC performance testing.

A computer benchmarking program runs a series of well-defined tests on a PC to measure its performance. The benchmarking program produces a score that you can use to compare a PC system's performance for common tasks. A higher score indicates better performance. Comparing benchmark scores is far easier than comparing complex technical specifications and can help you make informed decisions to deliver PC performance, cut hardware costs and save testing time.

What is a benchmark?

A good benchmark has three important qualities:

- **Accurate** – Consistently produces true and precise results.
- **Relevant** – Measures things that matter with realistic workloads.
- **Neutral** – Free of any intentional or accidental bias toward a particular product or vendor.



How benchmarks are used at the enterprise IT level



Benchmarks support you at every stage in the life cycle of your PC assets, making PC life cycle management easier for IT teams.



Planning and procurement

Simplify PC performance comparison and cost justification.



Validation and standardization

Test and compare the performance of new PCs against user-defined baselines.



Operations and management

Efficiently automate remote performance testing to provide reliable insights and reporting.



Optimize or replacement

Make informed PC life cycle decisions based on benchmark results stored in your central database.

Which benchmark should I use?

Benchmark tests are typically designed for a specific scenario — such as home or office use — and a certain class of device — such as a desktop PC, laptop, tablet or smartphone.

You should choose a benchmark that best matches the needs of your end users. For companies buying PCs for general office use, it makes sense to choose a benchmark that measures PC performance with a comprehensive set of tests that cover the wide variety of tasks performed in the modern workplace. Evaluating tasks that are relevant to your users empowers trust in the products they use daily.

A benchmark measuring the overall system performance for modern office work should consist of office workloads. You can evaluate the overall performance with the benchmark score while sub-scores help you focus on performance for specific activities.

Common tests include performance on everyday office productivity tasks and digital content activities such as:

- Web browsing
- Video conferencing
- Time to start apps
- Working with documents and spreadsheets
- Photo and video editing



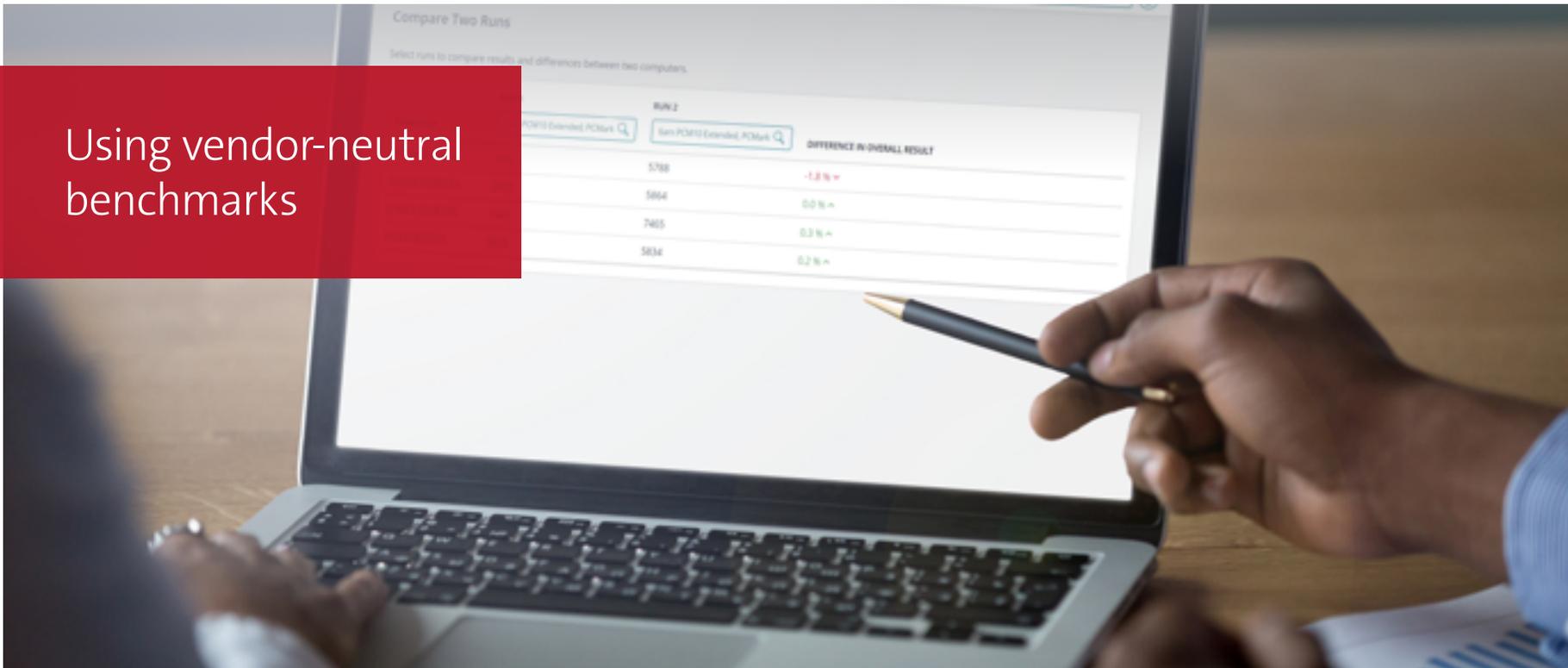
Choosing a reference benchmark score for RFPs

Setting a minimum benchmark score in your request for proposal (RFP) helps you judge the relative performance and value of different systems, and compare competing offers from your suppliers. Specifying performance with a benchmark score rather than a reference system also gives your suppliers more freedom to come up with cost-effective alternative configurations that you might not have considered otherwise. But what factors should you consider when choosing an appropriate score?

You can start by testing some of your existing systems. Our **How to Benchmark guide** will help you get accurate results. Benchmark old PCs that are ready to be replaced and new systems that were purchased recently. Comparing scores from these systems will give you good baselines. If you already have a good idea of the specification you're looking to buy, you can ask a supplier to provide benchmark scores for the system to provide another reference point.



Using vendor-neutral benchmarks



The best way to save on procurement costs is with fair and open competition. But many IT teams and organizations find it hard to describe PC performance in a practical, accessible and vendor-neutral way.

Specifying PC performance with an impartial benchmark score is a simple way to make sure your RFP is vendor-neutral. When it's time to make a purchase decision, you'll also find that comparing performance using benchmark scores is far easier than comparing component specifications.

Impartial benchmarks should be developed by technical experts in collaboration with leading technology companies using an open and transparent process that guarantees fair and neutral benchmarks.

Look for benchmarks that are universally trusted, respected and used by the press and the industry.

How to specify PC performance with benchmarks

One of the challenges facing IT managers and procurement specialists is how to specify PC performance in a practical and accessible way that generates competitive offers from suppliers.

Tenders for PCs often use a reference system to specify the minimum required performance. But even experts find it hard to compare the performance of different PC systems from their specifications alone.

A better way to specify and compare the performance of computer systems is to use benchmarks.



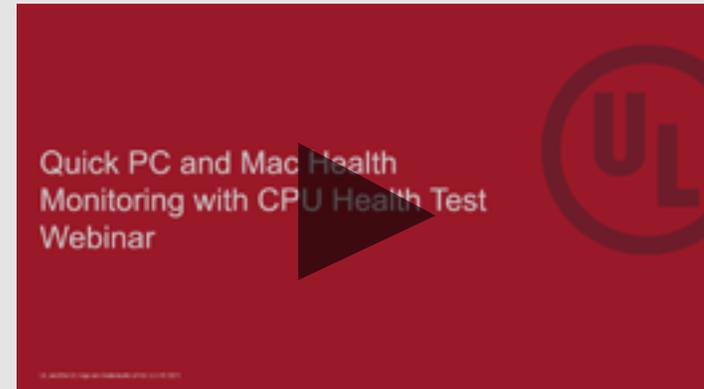
Specify PC
performance

How to benchmark performance

In general, you should test every device under the same conditions to produce reliable benchmark scores. For example, you should test every system in the same location, at room temperature, and away from direct sunlight and other heat sources.

The precision of scores from a reliable benchmark is usually better than 3%. This means that running a benchmark repeatedly on a consistently performing system in a well-controlled environment will produce scores that fall within a 3% range.

Individual scores may occasionally fall outside the margin of error since the factors that influence the score cannot be completely controlled in a modern, multitasking operating system. Some devices simply do not offer consistent performance due to their design. In these cases, run the benchmark multiple times, and then take an average or a mode of the results.



On-demand webinar: Learn about benchmark automation

Testdriver® Cloud Edition is the latest version of our popular benchmarking automation platform. Our software offers easy configuration, quick setup and convenient, cloud-based control over benchmark scheduling, deployment and result collection. Watch our on-demand webinar to learn more about automating PC performance testing

Watch now

Save time with automated benchmarking

According to Robert Half Technology, employees could be losing more than two workweeks each year trying to get their computer equipment to work.

Manually testing new computer systems and corporate OS images is notoriously time-consuming and prone to human error. And since Windows 10 moved to an OS-as-a-service model, enterprise IT teams have been under increased pressure to efficiently manage the image creation and deployment process.

IT managers often must deal with major feature updates every six months and a steady stream of security patches and quality updates in between. Every update risks disrupting employee productivity.

Managing OS deployment requires significant time and effort. What used to be an occasional one-off project is now a continuous cycle of creating, testing and deploying images. Running Windows 10 in an enterprise environment means adopting new processes to accommodate this continuous delivery model. IT teams must be flexible and agile, finding efficiencies in existing processes and developing new best practices. But shorter update cycles leave less time for testing, which is a risk for every enterprise.



Saving time with
benchmarking

Current approaches to Windows image testing

IT teams take different approaches to Windows 10 image testing. Some use a centralized approach, testing a representative sample of PC configurations in a dedicated testing environment. Others delegate application testing to business groups and application owners to report back on compatibility and user experience.

Both cases involve a lot of time-consuming manual work. Evaluating PC performance manually is slow, tedious and difficult. It's challenging to collect, analyze and compare different forms of performance data. With a manual approach, it's also harder to ensure consistent and reliably repeatable testing.

Demand for computer hardware and corporate OS images that perform well clearly indicates that IT professionals need a way to easily automate and measure PC performance testing and result management. With this data, you can tailor the appropriate corporate OS image and select the right PC models for your organization.

By switching from manual to automated benchmark testing, you can eliminate the mundane and repetitive tasks to improve test coverage and accuracy, streamline the Windows 10 image creation process, and save both time and money.

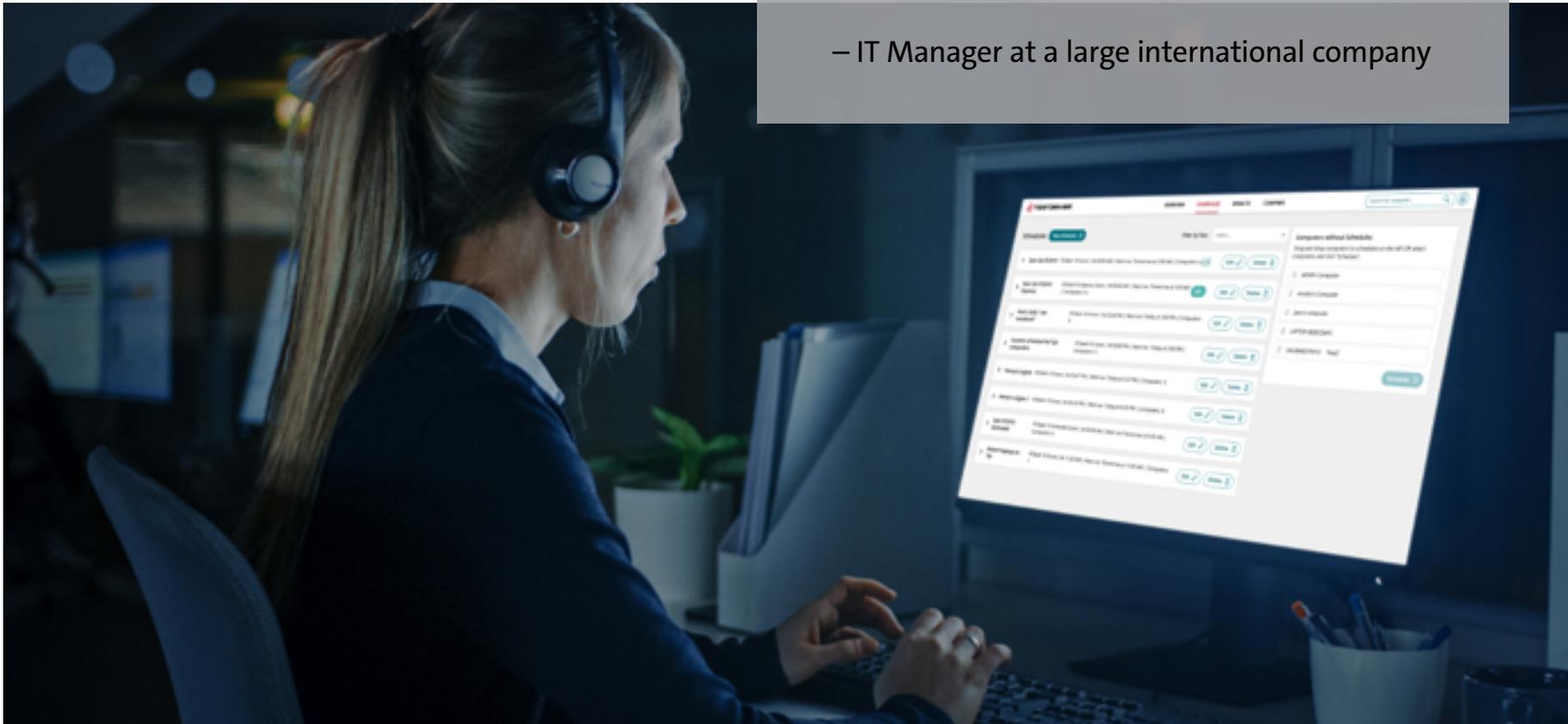
How automation can help

Automated benchmark testing can save you hours of repetitive manual work. For large PC environments, an automation solution supports testing hundreds of PCs over your network or from the cloud. Even better, while the tests are running, you can focus on other tasks to make the best use of your time.

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"We create custom OS images for over 120 PC configurations. There is very little time to do any kind of performance testing."

– IT Manager at a large international company



Saving time with
benchmarking

Consistent and repeatable testing

One of the biggest challenges of testing PC performance manually is ensuring that the test is repeatable. Fortunately, benchmarks are designed with consistency in mind from the start.

Using a well-designed benchmark is the best way to guarantee that you are testing the same thing, the same way, every time. This consistency is essential when it comes to comparing the performance of a new OS image against your baseline.

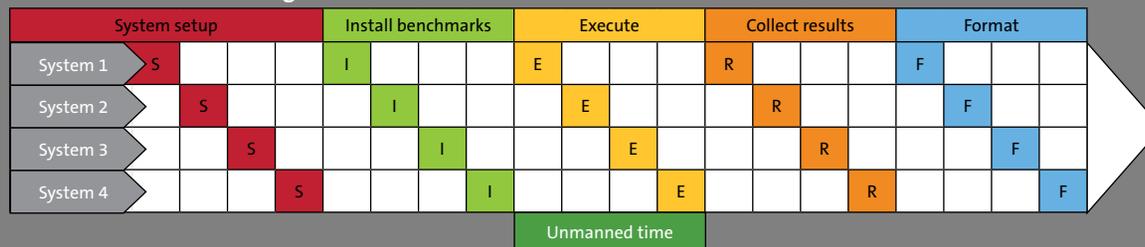
Benchmarks take the guesswork out of manual performance testing. Trusted benchmarks are developed in partnership with leading technology companies to help ensure that the tests are accurate, relevant and impartial.

Easy analysis and reporting

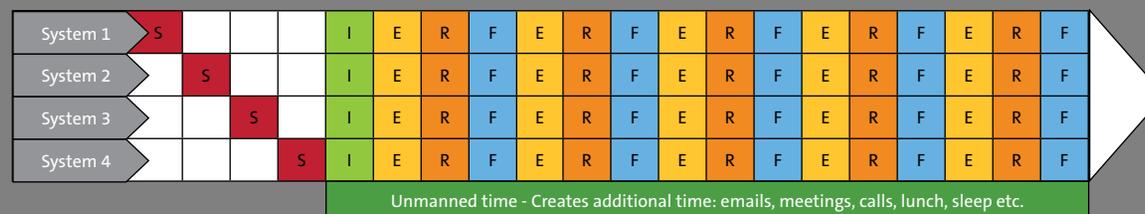
Benchmarks commonly produce an overall score as a measure of performance. A range of sub-scores can help you understand specific system capabilities.

Comparing the performance of two OS images is as easy as comparing the scores. Exporting your benchmark results as PDF files or XML can help simplify record keeping and further analysis. Storing your test results in one central database also offers easy access and tracking.

Without Automated Testing



With Automated Testing



Saving time with benchmarking

How benchmarking helps cut cost in your IT procurement budget

Cost reduction was the top strategic priority for 78% of chief procurement officers (CPOs) surveyed by Deloitte in 2018. But the same survey found that only 31% of CPOs are looking to increase supplier competition to deliver that value.

When a company buys PCs in large volumes, the savings can be significant. You may be able to get more value from your IT budget by increasing competition for your PC tenders.



Cut costs in IT procurement

Open competition

While there are undoubtedly benefits to consolidating spend with key suppliers, it could also mean spending more than you should.

Opening your RFP to more suppliers can increase your chances of getting a more competitive offer. With more offers to choose from, you'll also be in a stronger position to negotiate complementary added-value services such as support.

Avoid restrictive language

You can increase competition for your tenders by avoiding language that expresses a brand preference or restricts suppliers to a particular solution. A vendor-neutral RFP gives suppliers the flexibility to find the most cost-effective way to meet your requirements.

Get more for your IT budget

For the best results for your PC tenders, combine open competition with vendor-neutral language and specify the minimum required PC performance with a reference benchmark score. This powerful combination will give your suppliers the freedom to suggest innovative solutions that you may not have considered otherwise.

Specify minimum performance

PC tenders often provide a reference system or components to specify the minimum required performance. But even experts find it hard to accurately compare the performance of different PC systems from their specifications alone.

A better way to define PC performance is to use an industry-standard benchmarking program. Setting a minimum benchmark score in your RFP ensures that you won't be distracted by the false economy of a cheaper PC specification that underperforms. Asking your suppliers to provide benchmark scores in their proposals makes it far easier to compare competing offers. When you see PC performance expressed as a comparable benchmark score for cost justification, you'll also be less likely to overspend on overspecified systems.



UL's Benchmarking Solutions

UL's benchmarking solutions are designed for IT professionals who manage a large enterprise environment with systems in multiple locations.





PCMark® 10 is the latest version of our industry-standard PC benchmarking software. PCMark 10 measures complete system performance with tests based on real-world applications and activities.

Its performance benchmarks cover common office productivity tasks and digital content creation activities as well as everyday essentials, such as web browsing, video chat and app startup time.

With the PCMark 10 Applications benchmark, you can measure practical, real-world PC performance with tests that run in Microsoft Word, Excel, PowerPoint and Edge.

Testing Windows 10 image performance with PCMark 10 is quick and easy. Run the benchmark on your current image to set a baseline. Then repeat the tests on the new image to assess the performance impact of updates and configuration changes.

Each benchmark run produces a high-level benchmark score, mid-level use-case scores and low-level workload scores for greater insight into system performance. With PCMark 10, comparing the performance of two OS images is as easy as comparing the scores.

Learn more: Benchmarks.UL.com/pcmark10



Testdriver® Cloud Edition was born out of customer requests to simultaneously test, monitor and report on the performance of systems in multiple locations remotely in a fast, easy and consistent way. It works with PCMark 10 to streamline and automate benchmarking at scale. It's the ideal tool for IT teams that need to support a wide range of PC configurations.

With Testdriver Cloud Edition benchmark automation, you can schedule recurring benchmark runs on any PC from the cloud. You don't have to be physically present at the PCs you are testing. You can easily compare results against user-defined baselines and monitor PC performance on the individual and organizational levels. Everything is controlled from Testdriver's convenient cloud-based user interface with no database or server setup required.

Our Testdriver automation solution collects and stores all your benchmark results in your own private database. You can explore the database with Testdriver's powerful built-in reporting, trendline charts and result management or export the data for further analysis in your own business intelligence software and tools.

Learn more: Benchmarks.UL.com/testdriver-cloud-edition



Start testing PC performance today

IT professionals around the world choose UL's benchmarks to measure, understand and manage computer hardware performance. Our trusted and widely used performance tests help IT professionals like you make more informed decisions.

Contact us to learn more about automating performance testing to save time and money with UL's benchmarking solutions.

Contact us or visit Benchmarks.UL.com to learn more.



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