White Paper

High-Performance Workstations Powering Mission-Critical Workloads

Sponsored by: AMD and Lenovo

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May 2023

IDC OPINION

IDC projects that global consumer spending on digital goods and services will breach the $1 trillion threshold in 2026. Over the past decade, forward-thinking organizations have been accelerating their digital transformations to improve internal capabilities and stay competitive in an increasingly digital world. Consequently, the demand for tech talent and the sophisticated tools they run has steadily risen. For companies that produce and leverage digital content, ISV-certified workstations ensure their mission-critical workloads run optimally.

Two hallmarks of workstations are performance and reliability. Workstations are typically deployed into highly technical and resource-demanding use cases. Across manufacturing, architecture, engineering, and construction, designers use workstations for everything from 3D modeling to visualization, simulation, analysis, and fabrication. In media and entertainment, artists use workstations to render cutting-edge visual effects and graphics in cinema and gaming. Top software engineers and data scientists are also using workstations to train the most powerful AI engines of tomorrow. Summarily, workstations are built to meet the most compute intensive of tasks.

However, it's not just the performance that makes a workstation a workstation. It's the reliability underlying all that performance. The aforementioned use cases not only require high-performance computing but also often carry mission-critical workloads that represent the lifeblood of a company's business. Workstation OEMs invest substantially into their workstation brands so that workstation users can work with confidence. This includes getting their devices continually certified to optimally run major software solutions such as Autodesk Revit, Siemens NX, Dassault SOLIDWORKS, and Blackmagic Design DaVinci Resolve, among others. Workstation buyers know they are getting performance they can count on.

Workstations are also highly configurable across form factor, spec and feature set, price, and performance. According to IDC's Quarterly Workstation Tracker, in the past two years, deployments of premium desktop workstations with more than eight CPU cores has on average grown 25% a year. These workstations are increasingly being used to drive some of today's most complex content. This paper discusses the market for such workstations including the Lenovo ThinkStation P620 powered by AMD Ryzen Threadripper PRO processors.

The world is becoming more and more digital with a growing amount of digital goods, services, and content. Companies across all sectors can now leverage digital mediums to engage with their customers. If creating digital content is becoming an increasingly important part of your business, take a cue from today's top architects, designers, artists, engineers, and scientists and consider deploying workstations, the ultimate professional content creation tool.

SITUATION OVERVIEW

Among premium desktop workstations with more than eight cores, the Lenovo ThinkStation P620 boasted the largest shipment volume in 2022. And with the ability to go up to 64 cores, this workstation can handle any multithreading tasks. Let's see how some of today's leading companies leverage all that power for their mission-critical workloads.

Epic Games is an industry titan that boasts Unreal Engine and *Fortnite.* The former is the world's leading game engine with more than 11 million licensees. The latter is an international gaming phenomenon that counts its players in the millions. For Epic, time is money, and compiling code historically was a huge time sink and value drain.

Enter the Lenovo ThinkStation P620, which provided the company's engineers with huge boosts in clock speed and parallelism. Internal tests showed Epic that these workstations could help significantly cut time on crucial workloads compared with what its engineers were previously using. This in turn opened up resources and time for the engineering team. Epic VP of Engineering Nick Penwarden states, "That's a huge efficiency boost for all the engineers on the team. The less time they're spending compiling code, the more time they can spend actually developing features, testing the functionality, and working on improving Unreal Engine." For Epic, the Lenovo ThinkStation P620 provides gains, in both development time and worker productivity.

The Lenovo ThinkStation P620 workstation's real-world impact isn't just on digital output.
In manufacturing, it's helping brands like Sonos stay ahead of the pack. Sonos is one of the world's most recognized brands when it comes to home and personal audio. The company didn't have one singular challenge. Instead, it was bogged down by innumerable smaller disruptions throughout the day including very detailed models loading incorrectly, freezing upon rendering, or the software outright crashing.

In an effort to resolve these bugs, Sonos turned to AMD and was one of the first companies to deploy the ThinkStation P620 into real-world use cases. Per its own benchmarks, Sonos was able to speed up software compiling time by up to 55% and model simulation time by up to 20% with the new workstations. The results can speak for themselves, but allow IT Support Engineer Juan Garces to provide a final word: "My workflow is so much more efficient. If I spend 30 fewer minutes a day waiting for things to load, and to move around, and then if it saves me from three crashes a week, I'm getting more done every day."

Our final case takes us back to the media and entertainment industry. Wylie Co. was founded in 2015 as a smaller firm making the visual effects for some of the biggest films in the world. The production team for 2021's *Dune* – Oscar winner for Best Visual Effects – called upon the company to aid in post-production visual effects. Part of what drew the crew to Wylie Co. was the agility with which it turned around high-quality work.

Wylie Co. CEO Jacob Maymudes credits the Lenovo ThinkStation P620 workstation's massive bandwidth for the work the company does, allowing it to iterate quickly and efficiently while rendering in the background. This level of power and performance is what enables the company to produce widely acclaimed effects such as the holographic tree in the hunter-seeker scene of *Dune,* a scene itself nominated for the 20th Annual VES Award for best composite and lighting. For a company that stays ahead of the bleeding edge of content creation, the choice in professional creation tools is simple. "Our relationship with Lenovo and AMD has really flourished in the past couple of years. They just get visual effects."

FUTURE OUTLOOK

The acceleration of digital content, goods, and services is powering a computing revolution. IDC projects that technical application workloads (e.g., CAD, CAM, and AEC) will be among the fastest-growing workloads on enterprise infrastructure, with a 2021–2026 CAGR of 23%. To help power users keep up, deployments of premium desktop workstations are projected to grow at a 5% CAGR during this same time period.

The professional content creation industry has exploded in scale and expanded in ecosystem in the past half a decade. More companies are driving digital content to the marketplace, while more individual users call themselves professional creators each year. These users all require increasingly powerful tools to stay relevant in a fast-moving field. Workstations are the requisite tool for tomorrow's digital companies and professional creators.

OPPORTUNITIES/CHALLENGES

Opportunities

- Workstations provide high-performance computing for engineers, designers, programmers, and other power users.
- Performance levels are highly configurable and can be configured with professional graphics, server-grade CPUs, and ECC memory, meeting the most demanding technical workloads.
- Workstations are certified by some of the industry's most prominent software vendors, including Autodesk , Siemens, and Dassault.
- This reliability allows users to speed up task completion times, cut down downtime due to crashes, and improve the quality of their output.
- Manufacturers generally back their workstation brands up with additional levels of support and service.
- Companies that have deployed workstations in the past have seen productivity gains from their power users to date.

Challenges

- While workstations can provide better TCO in certain use cases, buyers should expect higher up-front hardware costs owing typically to better components.
- Workstations could overserve the computing needs of non-power users. Companies should be shrewd in deciding where to deploy.
- In lieu of its specialized nature, the workstation market is less diverse than the broader PC market in terms of vendor offerings and product mix.

CONCLUSION

The digital revolution continues to accelerate. Consumers are demanding more digital engagement, while companies across all sectors seek to transform and cross the digital divide. That means more digital tools to help power users build the digital content, goods, and services of tomorrow.

- Where is your company on this journey?
- Are your own goods and services becoming more digital in nature?
- Is digital transformation essential to your organization's ability to stay competitive in the long run?
- Do your engineers, designers, and scientists use technical applications to build their products and offerings?

If you answer affirmatively to any of these questions, consider what many of your peer companies have already done by deploying workstations to your power users. Workstations help power users across many industries iterate faster, reduce down time, and render more data in real time. They help companies plug value drains and get to market faster and more reliably. In short, workstations help companies keep up with the accelerating pace of the digital revolution.

MESSAGE FROM THE SPONSOR

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