Sonos product innovation powered by AMD

Lenovo workstations with AMD Ryzen™ Threadripper™ PRO CPUs enable faster, feature-rich audio product development.

AMD THREADRIPPER PRO

Sonos has become a household name. The company has pioneered wireless multi-room audio technology since its inception in 2002. With around 1,500 employees and multi-billion-dollar equity value, it has become one of the leading brands in the market. But to maintain its top position, Sonos must continue to innovate.

"As the inventor of multi-room wireless audio, we're committed to innovating fearlessly and responsibly to empower listeners to experience great sound wherever they are," said Juan Garces, IT Support Engineer at Sonos. "We recently launched the Move and the Roam, our first portable speakers that allow users to take the Sonos experience with them beyond the home." Sustaining this progress means keeping the Sonos design team equipped with the latest technology. Lenovo workstations powered by AMD Ryzen™ Threadripper™ PRO processors provided just what the company needed.

Ever-expanding CAD model sizes

"We're always looking to improve the listener experience through both hardware and software enhancements," explains Nick Jones, Mechanical Engineer, Sonos. "That inherently comes with broad CAD database and a lot of data exchange between our Product Lifecycle Management (PLM) system and our Siemens NX™ design software." This ever-expanding CAD database with increasing detail put a heavy strain on the design team's previous workstations.

"We use Siemens NX as our CAD program and Windchill® as our PLM system," continues Jones. "We ran into bottlenecks when Siemens NX was loading models, exporting models, and dealing with tons of data. The old computers were buggy. They were slower, taking a long time to load the models,

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and even crashed occasionally. Those little things really add up, especially when you're working on a huge assembly, with a lot of detail. If it crashes, you have to reopen the software and load the model again. That could take 20 minutes or more."

Sonos wanted to improve the workflow for its engineers, and its existing workstations were no longer delivering. "We didn't really know of other alternatives on the market," says Garces. "But since AMD was making big waves with Ryzen and has become such a big player in the market, we began to be curious about what AMD could offer instead."

That curiosity led to Sonos wanting to try AMD processors. "We started talking with our AMD reps, because we saw that the AMD Ryzen CPUs were delivering really big performance gains," says Garces. "There were tons of performance benefits for rendering and raw CPU speed. We asked Lenovo when they were going to start releasing workstations with those AMD CPUs, and they kept us in the loop. We tried out the Lenovo ThinkStation P620 as soon as it was available."

Faster compiling, faster engineering

The Sonos software team was the first to benefit from AMD processor performance. "We got a couple of sample Lenovo systems and delivered them to the team," says Garces. "They were the ones doing the initial benchmarks. They were doing single-thread compile and some multi-thread compile as well. They were seeing very, very significant improvements, up to half the time to compile. Things that used to take close to 40 minutes were now compiling in 18 minutes. Needless to say, they were very, very happy."

After this positive experience for the software team, Sonos began exploring where else the Lenovo workstations with AMD Ryzen™ Threadripper™ PRO processors could improve workflows. "The next obvious team was the mechanical engineering team," says Garces. "For our previous machines, we were paying twice the price that we were for the Lenovo ThinkStation P620 systems and getting little more than half the performance."

"Some of the systems we used before were dual CPU systems," adds Garces. "The Lenovo P620 with a single AMD CPU has replaced them, with more performance and less cost. These workstations have blown us away and we have upgraded all our previous desktop configurations, from the low end to the high end." Sonos has now purchased close to fifty P620 workstations. The software engineers doing compiling have been equipped with systems sporting 12-core AMD Ryzen Threadripper PRO 3945X CPUs and the mechanical engineering team have been given 16-core 3955WX processors, providing a stunning boost in performance.

"With the AMD Ryzen Threadripper PRO CPU-powered Lenovo workstation, the software and models load faster," says Jones. "I can now be in the CAD environment in a matter of seconds, without those random crashes. I did a lot of simulations with Ansys®, and the new AMD CPU-powered workstation was 20 to 30 percent faster when I benchmarked some CAD models. On an eight-hour model, that's a huge amount of time saved to cut it down to six hours."

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Faster workflow means better products

"Some of the parts of our CAD models have an absurd level of detail," says Jones. "On past machines, when you opened a model and rotated it, the computer would freeze for 10 seconds. Now, I go to rotate it and it only pauses for a split second – the blink of an eye. It's so smooth. My workflow is so much more efficient. If I spend 30 fewer minutes a day waiting for things to load, waiting for things to render, and to move around, and then if it saves me from three crashes a week, I'm getting more done every day."

"Nick was coming from a 24-core, but lower clock speed, non-AMD CPU," says Garces. "It had more cores but a lot less core speed. Part of the appeal here was also that the cost of the AMD-powered workstations was practically half of what we were paying with a leading competitor, for specs that are a lot better." The more fluid workflow enables the company to continue doing what it is famous for: creating quality audio devices. "It helps make Sonos that premium brand," says Jones. "The AMD CPU-powered workstation gives us more time to build in those really small details that make a Sonos product a Sonos product."

"AMD has found a good balance – the right number of cores, at an amazing speed," concludes Garces. The success has been so persuasive that Sonos has been rolling out AMD processor-powered systems elsewhere in its IT fleet. "We are transitioning most of the Windows laptops to AMD. The [AMD Ryzen PRO] 4000 and 5000 generations have been an amazing boost to productivity, and, again, price to performance is just insane – hard to beat. My advice to anyone contemplating the switch to AMD CPUs is buy one yesterday. It is a no-brainer. AMD has no competition now."

About Sonos

Sonos is the world's leading sound experience company. As the inventor of multi-room wireless home audio, Sonos innovation helps the world listen better by giving people access to the content they love and allowing them to control it however and wherever they choose. Known for delivering an unparalleled sound experience, thoughtful design aesthetic, simplicity of use, and an open platform, Sonos makes the breadth of audio content available to anyone. Sonos is headquartered in Santa Barbara, California. Learn more at sonos.com.

About Lenovo

Lenovo is one of the world's leading personal technology companies, producing innovative PCs and mobile internet devices. Now 286th on fortune 500 list, Lenovo is the world's largest PC vendor and fourth largest smartphone company. Lenovo is a US$47 billion personal technology company with more than 57,000 employees (including joint ventures) in more than 60 countries serving customers in more than 160 countries. Lenovo has major research and manufacturing centers in countries around the world. For more information visit lenovo.com.

About AMD

For over 50 years AMD has driven innovation in high-performance computing, graphics, and visualization technologies—the building blocks for gaming, immersive platforms, and the data center. Hundreds of millions of consumers, leading Fortune 500 businesses, and cutting-edge scientific research facilities around the world rely on AMD technology daily to improve how they live, work, and play. AMD employees around the world are focused on building great products that push the boundaries of what is possible. For more information about how AMD is enabling today and inspiring tomorrow, visit amd.com/Threadripper.