

FROM THE STUDIO TO THE SCREEN FASTER THAN EVER BEFORE WITH AMD

Thanks to AMD partnership and technology, Fox VFX Lab achieves real-time virtual production capabilities—fundamentally changing the way movies are made



CUSTOMER

Fox VFX Lab

INDUSTRY

Media and Entertainment

CHALLENGES

Streamline the on-set creative process by providing storytellers with rapid visual feedback and real-time insight into virtual environments while reducing final frame render times.

SOLUTION

Fox VFX Lab used customized BOXX APEXX T4 workstations equipped with AMD Ryzen™ Threadripper™ processors for facial animation. After initially using the EPYC™ processor-based servers for light baking, it started employing the servers for extensive light art, photogrammetry and construction setup.

RESULTS

With Ryzen Threadripper processors, Fox VFX Lab achieved significantly faster times than with dual-socket Intel® Xeon® processors. The EPYC processor-powered servers eliminated the need for render farms for complex calculations.

AMD TECHNOLOGY AT A GLANCE

AMD Ryzen™ Threadripper™ 1950X CPU
AMD Ryzen™ Threadripper™ 2950X CPU
Dual AMD EPYC™ 7601 processors

Through its use of groundbreaking, high-quality real-time visualization, Fox VFX Lab has shattered the barriers to the creative process—making it virtually limitless. To accomplish this, Fox VFX Lab needed the best in high-performance hardware for its artists. AMD suggested using BOXX APEXX T4 workstations equipped with AMD Ryzen™ Threadripper™ processors, as well as servers powered by AMD EPYC™, for virtual production, which combines live action with virtual elements while shooting scenes.

The BOXX workstations with Ryzen Threadripper processors delivered significantly faster performance—ultimately closing the gap to real-time creativity. In addition, the EPYC processor-powered servers proved advantageous for reducing final frame rendering.

CREATING THE 20TH CENTURY STORYBOARD

When 20th Century Fox Film needed its own in-house virtual production team, acquiring Glenn Derry's company Technoprops to create Fox VFX Lab was the best course of action. Technoprops was responsible for the virtual production work on blockbuster movies such as James Cameron's "Avatar" and games like "Call of Duty: WWII."

Today, with Derry as vice president of visual effects for 20th Century Fox, Fox VFX Lab continues Technoprop's legacy, creating and executing creative content for film, TV, games, and VR productions. Currently, the team is working on "The Call of the Wild," directed by Chris Sanders and starring Harrison Ford.

Using advanced virtual production techniques, Fox VFX Lab is fundamentally changing the way movies are being made. The Fox VFX Lab team calls the process "pre-viz on steroids." To combine previsualization with motion capture, it introduces virtual elements in the camera frame when shooting live action.

This has artistic benefits, as it allows the director to interact with the environment and actors in real time. It also has functional benefits, because every detail—from cameras to lighting—can be worked out ahead of time. In effect, it produces the storyboard of the twenty-first century.

THE NEED FOR PROCESSING SPEED

In order to achieve virtual production effectively and economically, Fox VFX Lab needed workstations and servers that could drive faster render times. "It's important to get as close as possible to real time in order to leverage your creative instinct and feedback so you can make the right decisions," said Derry. One of the biggest challenges to this process was light baking. Due to the complex calculations involved, a great deal of the work had to be performed during setup.

ACCELERATING THE CREATIVE PROCESS

"Derry wanted his artists to have hardware that didn't limit their creativity and enabled the team to work extremely quickly. "We have a very tactile, very fast flow of creative ideas, so you don't have time to wait for renders. We're essentially doing a live show every day," he explains. "We were looking for the best machine we could get so the artists would never say, 'If only my workstation were a little more this or a little more that.'"

"We were pretty stunned to see the workstations perform so amazingly fast."

Glenn Derry,
VP of Visual Effects,
20th Century Fox

As Derry's team began testing processors, James Knight, virtual production director at AMD, who worked as the performance capture project manager with Derry on "Avatar" was there to help. With a deep understanding of what Fox VFX Lab needed and a sincere desire to enable the next generation of filmmaking, Knight and his AMD team suggested using Ryzen Threadripper CPUs in customized BOXX APEXX T4 workstations, along with two EPYC processor-based servers.

Thanks to the 16 core Ryzen Threadripper, the new workstations delivered lightning-fast performance when rendering. That meant that every machine was capable of working at the speed needed for real-time visualization. "We were pretty stunned to see the workstations perform so amazingly fast," said Derry. "It was a notable performance advantage in base workloads. And that's only gotten better over time with the next-gen Ryzen Threadripper with 32 cores, which allow us to shine in occasional workloads that depend on a high core count."

After initially employing the EPYC processor-powered servers for light baking, the team started to use them for extensive light art, photogrammetry, and construction setup. In the future, Derry is even planning to use them for neural network training.

As a result of all these improvements, the creative process became much faster. "The EPYC processor-based servers took performance to another level of amazing," said Ron Fischer, senior software engineer at Fox VFX Lab. Instead of waiting on rendering, the team gained more time and could focus entirely on creating. Everyone was delighted with the new hardware. "As an artist, it's top-down, wind-in-your-face, artistic computing," said Derry. "It's exhilarating, being able to turn out high-quality work very, very quickly."

WORKING ON "THE CALL OF THE WILD"

Fox VFX Lab's work on "The Call of the Wild" has been greatly facilitated thanks to the new workstations and servers. Interestingly, the movie was greenlit with the help of a previsualization created by the team.



Currently, Fox VFX Lab is working closely with director Chris Sanders, employing a simul-cam technique that superimposes some of the dog characters live into the camera's view finder during live-action filming. The team's ability to quickly take Sanders' directions and relay them to on-screen visuals offers Sanders a high degree of agility in the storytelling process—something that's needed when translating Jack London's classic into a family-friendly movie.

PUSHING THE ENVELOPE WITH AMD AND BOXX

Initially, Derry planned to add a significant number of servers. However, because Ryzen Threadripper gave the artists the ability to render at their workstations, it was no longer necessary. Moreover, the workstations had a small footprint, which was beneficial on set.

Fox VFX Lab purchased more than 80 Ryzen Threadripper processor-based workstations, a move that also caught the eye of several other industry leaders who subsequently copied the Lab's workstation strategy.

In addition, the team's feedback has prompted AMD and BOXX to create even more powerful and innovative solutions. As a result, BOXX is implementing an overclocked version of Ryzen Threadripper to increase speed and performance. And whereas APEXX T4 was a tall workstation solution, BOXX has developed a multiple rack-mounted configuration with many of the same sturdy, practical design features but equipped with a newly-developed Ryzen Threadripper processor designed specifically for this kind of configuration.

Derry and Fischer emphasize how pleased they are with both AMD and BOXX's partnership, service, and technical support. "It's so important to have a partner that can look you in the eye and offer you the support you need," said Fischer. Derry agreed. "AMD really give us the white-glove treatment," he said. "Whenever we have any tech questions or ask for something, they respond immediately. It's those little things that make all the difference."



ABOUT FOX VFX LAB

Fox VFX Lab, the in-house virtual production team for 20th Century Fox Film, was founded in April 2017 when Fox acquired Technoprops, an industry leader in virtual production and real-time visualization that contributed to blockbusters such as "Avatar," "Zero Dark Thirty," and "The Jungle Book." Under the guidance of Glenn Derry, founder of Technoprops and currently vice president of visual effects at Fox VFX Lab, the team's capabilities span from creative content development and execution to cutting-edge previsualizations for film, TV, game, and VR productions. For more information visit foxvfxlab.com.

ABOUT AMD

For more than 45 years, AMD has driven innovation in high-performance computing, graphics, and visualization technologies—the building blocks for gaming, immersive platforms, and the datacenter. 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.