Blur Studio empowers greater creativity with AMD Ryzen™ Threadripper™ CPUs

Faster rendering means more time for improving creative results with AMD Ryzen Threadripper processors

Producing the all-action visual effects that give modern movies their exhilaration is a partnership between creativity and brute computing power. An artist may be able to imagine an amazing sequence, but if rendering it out takes too long, that idea may never be realized in time for the filmmaking deadline. When Blur Studio took on a key action scene for *Terminator: Dark Fate***, it realized that a new workstation platform could radically improve the production pipeline and make unprecedented levels of creative work possible.**

Blur Studio did much of the visual effects work for *Terminator: Dark Fate*, and a key sequence was where a watershed moment in the backstory of one of the main characters of the film is revealed. Known as the "Dragonfly" sequence, it's a showcase of fast-paced action and incredible animation that took many hours of work to complete. But it would not have been so full of impact without the enhanced workflow made possible by AMD Ryzen™ Threadripper™ processors.

Discovering the power of AMD Threadripper CPUs

"We were looking at our options, and I tried an AMD machine we had," says Shawn Wallbridge, Head of IT at Blur Studio. "I started to play around with it and was blown away at just how fast it was. That was the 1st Gen EPYC™ 7351." Wallbridge's admiration for the EPYC processor led him to build a

workstation for his own use based on the 2nd Gen AMD Ryzen Threadripper™ 2990WX processor. "I was even more impressed; it was just incredibly fast."

This all happened around the time work was picking up on *Terminator: Dark Fate*. "We needed to get some more machines and I said, 'my Threadripper is pretty awesome,'" continues Wallbridge. "So I priced out what we would typically buy, which would be a dual-Xeon machine, usually from Supermicro, and realized that we could get so much more performance and at a lower cost by going with AMD. I pitched that to accounting, and they were on board with it."

"To build a workstation with dual Xeons, you're looking at $20,000 in processors, and now the Threadripper 3990WX is $4,000. It's faster, so Intel Xeon really just doesn't make any sense at this point."

Shawn Wallbridge, Head of IT at Blur Studio

Traditionally, a VFX studio will perform creative work on local workstations, then render this to see how it will look, before making adjustments and rendering again. The artists can do these test renders on their local machines, but this usually means they can't use them for more animation work until the render is complete. Alternatively, they can wait in line for a slot on the server render farm to be available. A sequence of just a few seconds typically requires 20-30 revisions before completion, so waiting for numerous test renders can mean a major interruption to workflow. The Dragonfly sequence contains a huge explosion with 1.4 billion voxels. But for a sequence like this, there is a tradeoff between the level of detail that can be accomplished and the time it takes to test-render and revise each design version.

Many cores make light work

This was where the workstations powered by the 32-core AMD Ryzen Threadripper 3970X processor proved revolutionary. They were both great at design work and superb for test rendering. "The Threadripper was scoring about 45,000 in the V-Ray benchmark," explains Wallbridge. "Our Xeon workstations based on dual E5-2630 V4 CPUs were around the 25,000 range, so that was just insane." This meant that the artists could use their workstations for test renders, rather than push them out and wait in line for the render farm. "We had three big projects delivering right around the same time. One of the comp renders had been on the farm for 15 hours. The artist launched it on his machine and that finished in five minutes while he was still working."

This had a huge secondary effect for the creative process. "They could iterate quicker, get it in front of the client, in this case Tim Miller, Blur Studio's founder, and get his comments and feedback and make the shot that much better," says Wallbridge. "The Threadripper workstations were so powerful that they could keep working and then launch multiple background renders at the same time. They didn't even need to use the farm." This allowed the artists to work on iterations much more quickly, producing better results. "If you're trying to simulate smoke, the more particles you have, the more realistic it looks. The software is designed to be multi-threaded. Having all those cores really helps to get the images processed faster."

Compatibility with production software is always a concern for hardware used in M&E, but the AMD Threadripper CPU-based workstations

"The Threadripper workstations were so powerful that they could keep working and then launch multiple background renders at the same time."

Shawn Wallbridge, Head of IT at Blur Studio

behaved seamlessly. "One of the things that we did early on was we rendered an image on an Intel machine and on an AMD machine and then took that image into Nuke and did a difference. We had zero issues, which meant that we were able to mix those two platforms in our environment without worrying about variations between frames." Blur also predominately uses NVIDIA graphics hardware, which worked without issue with every generation of AMD Threadripper CPU-based workstation in the studio.

Faster results mean better quality

The AMD Threadripper processor enabled Blur to hit deadlines that would not have been possible otherwise. "We were coming up to a trailer for *Terminator*, and Tim decided he wanted to put one of the shots that we were working on in the trailer," says Wallbridge. "At first it was very hit or miss whether we could do it, but having those machines actually allowed us to meet the deadline. With the existing workstations we had before that, none of us think it would have been possible. For that sequence, our work was actually given to other vendors as a reference for what to strive for quality wise."

Wallbridge remains committed to the platform going forward. "I have zero intent on buying any more Xeons," he says. "To build a workstation with dual Xeons, you're looking at $20,000 in processors and now the Threadripper 3990WX is $4,000. It's faster, so Intel Xeon really just doesn't make any sense at this point."
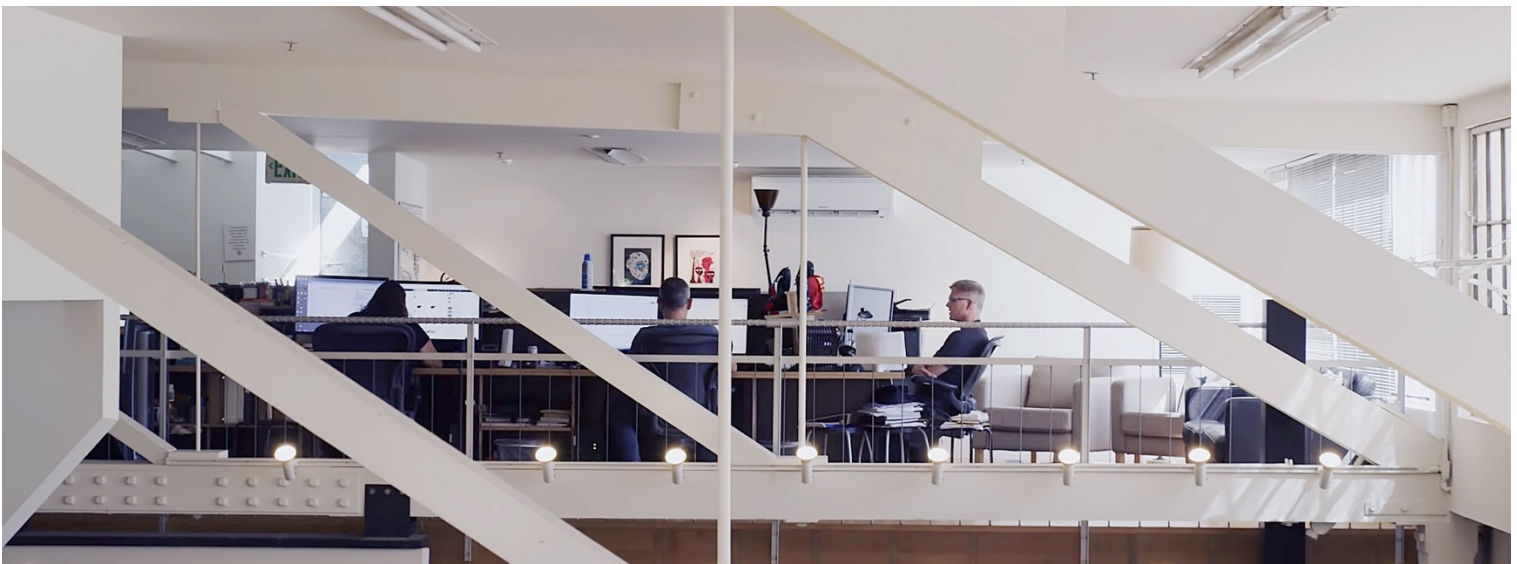
About Blur Studio

In 1995, Tim Miller founded Blur as a studio for animators and artists to collaborate and be in control of their creative destinies. Since then, Blur has evolved into an award-winning production company with work spanning the realms of game cinematics, commercials, feature films, and more. Committed to its clients, its people, and the telling of great stories, Blur Studio continues to grow not only as a high-end animation studio but also as original content creators, having recently helmed Netflix's first animated anthology, *Love, Death + Robots*. To learn more about Blur Studio, visit blur.com.

About AMD

For 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.