



Blur Studio revolutionizes rendering with AMD EPYC™ CPUs

Faster rendering makes more realistic animations possible thanks to AMD EPYC processors



PARTNER



INDUSTRY

Animation and VFX for media and entertainment

CHALLENGES

Reduce render time for complex effects sequences

SOLUTION

Deploy dual AMD EPYC™ 7742 CPUs as a rendering platform

RESULTS

Enable more detailed and realistic animated simulations and rendering, and do it faster

AMD TECHNOLOGY AT A GLANCE

AMD EPYC 7742 processor with 64 cores

PARTNER

Supermicro

Delivering stunning visual effects takes immense amounts of computing power, so the greater the processor core density a studio has on its render nodes, the better. When Blur Studio and Tim Miller, the director of *Terminator: Dark Fate*, conceived of a key, complex scene for the production, the company needed something even more powerful than its existing render farm to achieve the level of quality and response times the artists needed. They turned to AMD EPYC™ processor-powered servers to deliver the performance boost they required to take the visual realism to the next level.

"There was a giant explosion that we had to simulate using Houdini 17," explains Shawn Wallbridge, Head of IT at Blur Studio. This was a major portion of a scene known as "Dragonfly." "It's a flash-forward sequence in the movie explaining the backstory of one of the main characters. Tim Miller looked at the script and cherry-picked it as something that would be perfect for Blur to do." But a complex scene like this requires particularly powerful computing to create the necessary detail. "The more particles we can put into it, the more fine-grained the simulation is, the more realistic it looks."

Beginning an EPYC adventure

Wallbridge had been testing the AMD EPYC CPU as a workstation processor at the time and had already discovered its significant processing prowess. "We ran the V-Ray benchmark on it, and its score beat

everything on the V-Ray benchmark at that point," he says. "It scored 75,000. The top end at that point was the dual Xeon Platinum 56-core machine, and that was at 64,000 or so." This indicated that the AMD EPYC processor would have the necessary horsepower to render the effects detail they wanted for Dragonfly in time for their deadlines. "We put it right to work."

"I have zero intent on buying any more Xeons at this point. It just doesn't make sense given the performance and cost of AMD products. It's just mind blowing how fast the effects are and I can't wait until the next generation."

*Shawn Wallbridge,
Head of IT at
Blur Studio*

Blur's existing render farm consisted of 500 dual-Xeon nodes at the time. This is a huge amount of computing power, but there could still be a bottleneck when the studio was working at its capacity. "The timing for us was really challenging because we had three big projects all delivering right around the same period, so our render farm was really backed up. We were taking up to seven days for every job on the farm to finish." Adding some EPYC processor nodes promised to ease these bottlenecks in the render farm

and enable the detailed simulation and animation work that Blur hoped to perform for this important sequence in *Terminator: Dark Fate*.

"We ran a simulation on the EPYC server and on one of the blade servers that we normally have, which are dual Xeon E5 V3s," continues Wallbridge. "It took 75 hours on one of our higher-end render node Xeon blades, and it took only 10 hours to run on the EPYC. That was the main explosion in the Dragonfly Sequence, which had over 1.4 billion voxels."

Enabling more detail with AMD EPYC CPUs

This radical improvement in rendering performance is the difference between three 24-hour days for the Intel Xeon to render versus getting it done overnight with the AMD EPYC server. This was a massive change in workflow with the artists now able to see results from the previous day's work the following morning. After experiencing this incredible performance, Blur added the dual 64-core AMD EPYC 7742 server platforms to help with the work on *Terminator: Dark Fate*. It proved invaluable in getting the work done for the Dragonfly scene.

"The big explosion when Rev-7 Terminators come down and they hit the ship and it explodes was entirely done on the EPYC machines that we have here," explains Wallbridge. "It got to the point where we were adding so much to that explosion to make it look so much better that the EPYC machines were the only ones in the company that could actually do the work."

The end results speak for themselves, with an action sequence that is both frenetic and believable. "If you look at that explosion, you can see it looks super realistic because we were able to get that higher particle count in there without waiting a week for a render to come back," says Wallbridge. This ability was highly appreciated by the artists working on the sequence. "A typical quote from the artists that used EPYC most heavily on *Terminator*, 'I love it, and it should never leave. Favorite machine in the place right now.' It really did allow us to make that explosion that much better."

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Bigger bangs for the buck with AMD EPYC CPUs

The AMD EPYC CPU isn't just about vastly increased performance either. It can also reduce costs significantly, both in terms of capital outlay and everyday expenditure. Although media and entertainment companies typically don't refresh their render farms more frequently than every 3-5 years, as Blur upgrades its existing Intel Xeon servers to those powered by AMD EPYC processors, the benefits make them the obvious choice as replacements.

"Based on the V-Ray benchmarks," says Wallbridge, "I calculated that I could replace all 500 of our current render nodes, which fill five full server racks, with half a rack of dual EPYCs, so 56 machines. We could go from 500 Intel machines to 56 with EPYC and have the same processing power that we have now with much lower licensing costs, power, and cooling." Blur calculates that with 444 fewer AMD EPYC servers and a rack server power draw of 500 watts, this creates 222kW power savings which would mean a massive reduction in the total cost of ownership. Plus, there's an additional saving from managing 444 fewer servers.

Blur is so impressed by what it has achieved with AMD EPYC CPUs that it is telling other studios about it. "I've offered other people in Los Angeles, even our competitors, to come by and run benchmarks," says Wallbridge. "Considering the CPU marketplace right now, there's just no competition. At five times the cost for Intel to get less performance, does that make sense when you can go with AMD, save a lot of money, and get much better performance? I have zero intent on buying any more Xeons at this point. It just doesn't make sense given the performance and cost of AMD products. It's just mind blowing how fast the effects are, and I can't wait until the next generation."



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](https://www.blur.com).

About AMD

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