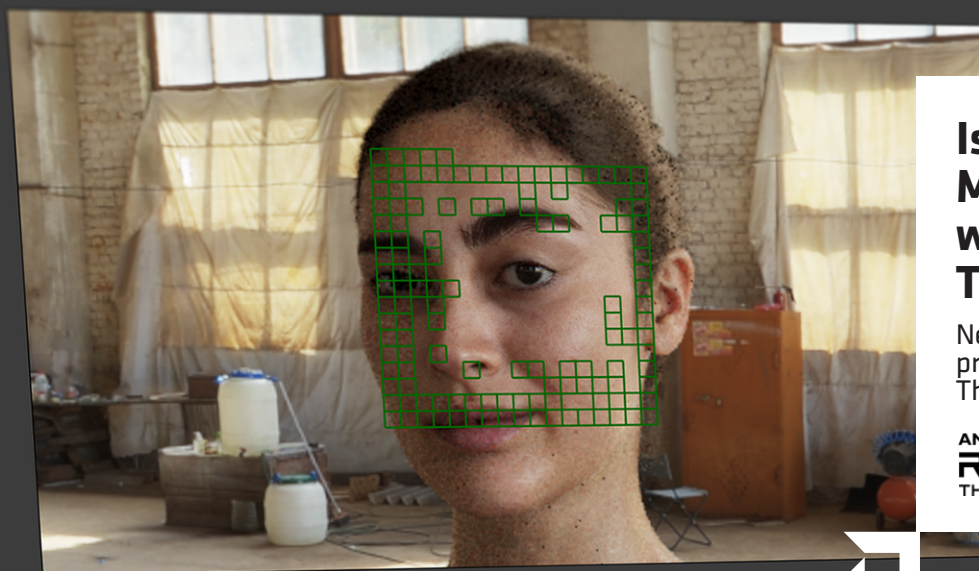




Isotropix™ Empowers Movie Creativity with AMD Ryzen™ Threadripper™ CPUs

Near-final quality visual effects previews using AMD Ryzen Threadripper processors

AMD
RYZEN
THREADRIPPER

PARTNER

isotropix

INDUSTRY

Movie VFX software

CHALLENGES

Maximizing design performance for VFX artists

SOLUTION

Deploy AMD Ryzen Threadripper processors

RESULTS

Immediate near-final screen renders, enabling a much faster creative workflow

AMD TECHNOLOGY AT A GLANCE

AMD Ryzen™ Threadripper™ 2990WX
AMD Ryzen™ Threadripper™ 3970X
AMD Ryzen™ Threadripper™ 3990X

Creating movie 3D visual effects (VFX) is one of the most intensive tasks you can run on a workstation, and Isotropix is at the forefront of this business. Its Clarisse software is used in around 60 percent of Hollywood blockbusters to create the final images. But unlike a lot of software in this space, Clarisse relies massively on CPU rather than GPU power. It is also very efficiently multithreaded, so when AMD launched its Ryzen™ Threadripper™ workstation processors, it was like a dream come true.

Isotropix was founded with the aim of improving the creative workflow of VFX artists, resulting in the company's flagship product, Clarisse. "A lot of the images you see on big Hollywood blockbusters have been created and rendered with our package," explains Sam Assadian, CEO and Co-Founder of Isotropix. "There are millions of images that are rendered with our software every year."

Harnessing the power of multiple cores

Clarisse works differently than traditional software in the VFX industry, which is why it has carved out such a prominent role in the workflow of so many successful movies. "It's a new kind of package," explains Assadian. "Until Clarisse you had the 3D application, where you model an image, do some rigging and some look development, but when it comes to rendering, it's always relying on external software."

At Isotropix we've dropped the beginning of the pipeline, which is modeling and animation, and we concentrate on a single tool that is completely focused towards addressing look development, lighting and rendering within a single package."

"When we started to test the 3970X, I said, 'How's that possible?' From one generation to the next, it's on average 50 percent faster."

Sam Assadian, CEO and Co-Founder of Isotropix

The VFX artists still use their preferred tools to create the models and animation—such as Autodesk Maya or 3ds Max—but then brings these into Clarisse to assemble the assets into a movie scene. "They can be massive environments or just a single car inside an immersive space," says Assadian. "Within Clarisse, the artist can assign materials, create lighting and make final renders."

Traditionally, rendering out a final movie image can take an excruciatingly long time. "Each

image may require up to 100 hours to render, and there are 24 images in a second," adds Assadian. "So that needs a lot of processing power, but also memory, because you have terabytes of textures and millions of polygons for a single asset. In order to use a package like Clarisse or any high-end VFX software, you need a lot of

power. One of the biggest issues is that around 2004 we could not go beyond 5GHz on a core, so processors started having multiple cores."

This is where Clarisse came in. "All the traditional tools were outdated because they could not exploit the power from massively parallel processing with the new CPUs," says Assadian. "Most of these applications are mono-threaded, so most of the time they use a single core except for rendering. Clarisse was designed with parallel computation in mind. We use as much CPU power and multiple cores as we can, and not only for rendering but for the whole application." This includes all the design stages that were traditionally accelerated only by a GPU. Clarisse renders a near-final image in almost real time as the designer works.

Linear scaling for faster rendering

This focus on multithreading led Isotropix™ to early AMD Ryzen™ processors, starting with the eight-core desktop Ryzen 7 1800X CPU. “We were super happy because it was cheaper and faster,” says Assadian. But it was with the arrival of AMD Ryzen Threadripper™ CPUs that Isotropix really started to see unprecedented abilities. “The one that really blew our mind was the 2990WX, the 32-core. The only way Intel could compete was with a \$20,000 machine. But with a \$5,000 AMD machine or even less, you had similar performance or even better.”

The multithreading in Clarisse is so efficient that the more cores you have, the faster it goes. “It scales linearly,” explains Assadian. “You get four times more performance with 32 than 8 cores.” The AMD Ryzen Threadripper 3970X processor was the next revelation. “When we started to test the 3970X, I said, ‘How’s that possible?’ From one generation to the next, which has almost the same specs on paper, it’s on average 50 percent faster. On some scenes, it can get up to three times faster. That’s like magic. It’s just insane.”

With Clarisse’s linear scaling, the AMD Ryzen Threadripper 3990X has proven to be the most effective of all. “You mean the real weapon of mass destruction?” asks Assadian. “This one is so fast that it looks like we are doing GPU rendering. You have 64 cores, and you have 1.6 times the performance of the 3970X, because the clock speed is not as fast in the 32-core. When we render an image in Clarisse, for each of the threads we have a little green square.

With Threadripper, you open the image and you see the whole image is covered with green squares everywhere. When you see all these squares over your image and you know that each one of them is going to display something final super soon, that’s just beautiful.”

“A few years back, before Ryzen, there was no choice. It was Intel or Intel. Now it’s the same. There is no choice. It’s AMD or AMD. We don’t even buy any Intel anymore.”

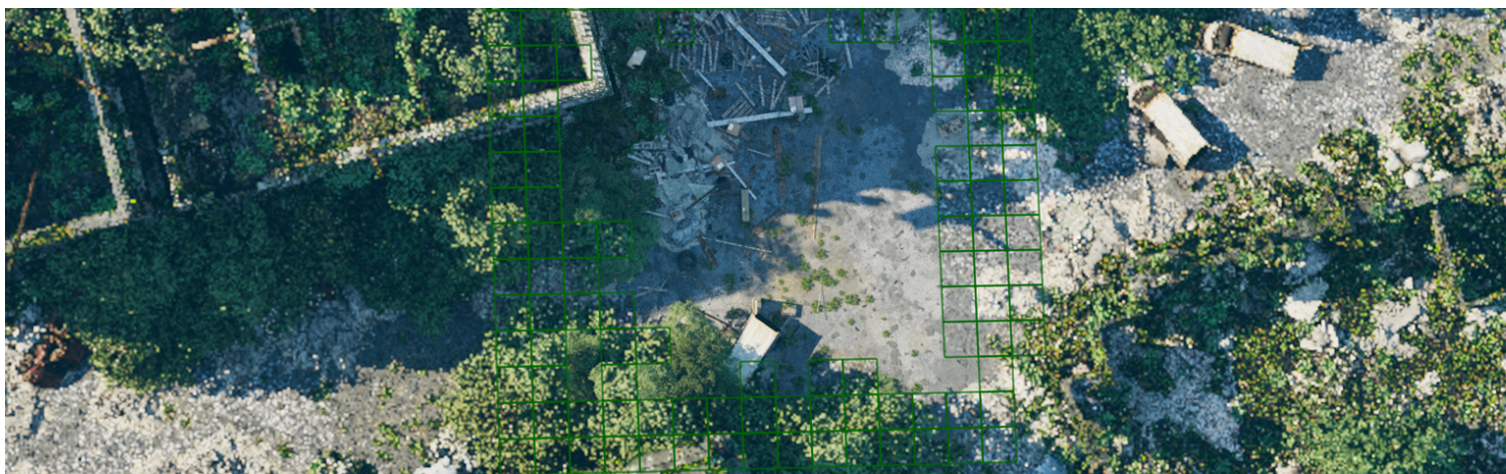
Eric Smith, Technical Artist at Isotropix

True interactive dailies

Clarisse running on an AMD Ryzen Threadripper CPU provides a much better experience than GPU rendering too. “You don’t need a powerful GPU to run Clarisse, you just need a basic one for the graphics to display something, and Threadripper works perfectly with any Nvidia and AMD GPUs, no problem. But every single computation is performed on the CPU. You don’t have any memory limitation. As soon as you run out of memory on GPU, either you massively lose performance, or worse, you can’t render at all, whereas CPU is completely scalable. The more memory you have, the more data you can put in it. And it’s very simple to increase the system memory, unlike on GPUs.”

“If you wanted to reproduce an AMD Clarisse experience on a GPU plus Intel machine,” adds Eric Smith, Technical Artist at Isotropix, “you’d need very expensive machines.” But even then, the workflow would be inferior. “With Clarisse running on Threadripper, I’m able to work on a final image that’s rendering almost as fast as on a GPU. But the difference is that because of our software, the image has 80 billion polygons, and it’s rendering in front of my eyes like that. You’re way closer to the final image.”

“You can have interactive dailies,” concludes Assadian. “The working image is so close to final, why have dailies when they can just come by the desk and say, ‘Okay, can you just move that, reduce the area. Okay, that’s perfect. I approve.’” This means faster creative iteration and a better-looking movie that costs less. “It’s just cheaper and way faster. A few years back, before Ryzen, there was no choice. It was Intel or Intel. Now it’s the same. There is no choice. Whether you are getting a workstation or a laptop, it’s AMD or AMD. We don’t even buy any Intel anymore.”



About Isotropix

Founded by animation industry veterans, Isotropix™ is specialized in developing high-end professional graphics software to provide CG artists game-changing innovations. Isotropix was founded to design solutions “for CG artists, by CG artists.” The company aims to revolutionize the market by simplifying user-workflow with disruptive, innovative software that answers CG artists’ growing frustrations. Thanks to revolutionary patent-pending technology, Isotropix is the world’s first CG software development company to provide, within a single package, the unique integration of most needed features to easily create rich and complex images. For more information, visit www.isotropix.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.

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