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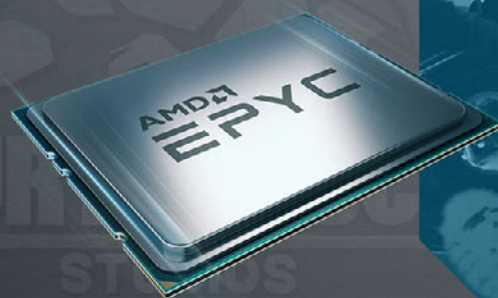
GAME DEVELOPMENT ACCELERATED BY TURTLE ROCK STUDIOS WITH AMD EPYC™

AMD EPYC gives the award-winning AAA video game developer more computing power, enabling it to work faster and deliver the high quality its audience expects

CUSTOMER

TURTLE ROCK STUDIOS

INDUSTRY

Game development

CHALLENGES

To achieve faster builds in the development of a new AAA game allowing for frequent iteration through a fast-paced development cycle.

SOLUTION

Turtle Rock equipped its 20 servers with two EPYC™ 7351 CPUs each.

RESULTS

With the EPYC CPUs, Turtle Rock saw significant time reductions, including cutting the time to create some of its rapid builds from 45 minutes to 15 minutes while simultaneously enhancing the resolution and quality of the game.

SOFTWARE

Unreal Engine
Visual Studio

AMD TECHNOLOGY AT A GLANCE

AMD EPYC 7351 processor

Turtle Rock Studios is known for its high-quality video games that they develop using an iterative process of continuous testing to improve the quality of their end products.

In order to speed up their test and modification cycles, the company decided to evaluate a new server with dual AMD EPYC™ CPUs. The result was a greatly accelerated development process that delivered not only speed, but also higher resolution images and faster cycle times.

DEMANDING COMPUTE ENVIRONMENT

Turtle Rock Studios Inc. is one of the last remaining independent developers of AAA video games. The company developed the video game *Left 4 Dead*—the first zombie co-op shooter and still considered to be one of the best co-op shooters ever made—as well as innovative asymmetrical multiplayer shooter, *Evolve*. Currently, the company is developing a new AAA franchise.

As part of the game development process, the Turtle Rock team creates multiple complete, usable builds each day for iterative testing. This development cycle process requires a rapid build system that involves tasks such as code compiling, asset compiling, compression, rendering, and precomputing lighting.

"The more computing power we have, the faster and more efficient we can make our people," explained Turtle Rock's Technical Director Wes Macdonald.

"Unfortunately, there frequently wasn't enough computing power available. That's why we started to look for other solutions that would help us work faster and improve the final product."

FOCUSING ON RESULTS

When the Turtle Rock team started to explore servers that could deliver the amount of computing power they needed, one of Turtle Rock's vendors sent a new Gigabyte® motherboard with EPYC processors. The team tested it against other solutions—including Intel® Xeon® CPUs—in a direct, head-to-head race, comparing the time it took for each solution to complete several long tasks. While their performances were similar, there was a significant difference in price. "When we compared it for dollars to compute power, AMD EPYC won hands down by a factor of at least one and a half," said Macdonald.

In addition, with previous CPUs, I/O had been a problem—but with every EPYC processor having 128 PCIe® lanes, the bottleneck went away. "I/O just wasn't an issue anymore," said Macdonald. "It simply disappeared from our metrics."

"EPYC's sheer number of cores that provide considerable computing power within a small footprint made it the perfect solution for us."

Steve Goldstein, Studio President and General Manager at Turtle Rock

Now, with 20 dual socket EPYC™ 7351 processor-powered servers, the Turtle Rock team has been able to achieve faster renders. "Thanks to EPYC's high number of cores, we've reduced the time needed to create a build from 45 minutes to an astounding 15 minutes–even when simultaneously running multiple applications such as Unreal Engine and Visual Studio," said Macdonald.

This time reduction enables the team to test the game much more frequently, which ensures that the artists get feedback much faster than ever before so that they can consistently make improvements in an iterative manner. As a result, they've also increased the resolution and quality of the light mass they generate, so the game is visually more appealing.

"The EPYC CPUs allow us to iterate the game quickly and improve the product directly," Macdonald explained. "We only used to be able to do this once a day, but now we can do it four times a day–and that has eliminated frustration for a lot of artists. They get to try out things and see the adjustment almost immediately after–and that results in a better, more engaging game."

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And as Steve Goldstein, Studio President and General Manager at Turtle Rock, added, "EPYC's sheer number of cores that provide considerable computing power within a small footprint made it the perfect solution for us."

FAST AND RELIABLE

Currently, Turtle Rock is doubling its EPYC processor-based infrastructure and moving its entire studio over to run on EPYC processor-powered systems. "We're saving money–and that's incredibly important. Anything we can do to ensure we hit our budgets and our deadlines, we should do. We have approximately 40 EPYC CPUs, and the servers have been running 24 hours a day, 7 days a week–without a single problem," said Macdonald. "They're fast, powerful, and extremely reliable. You just have to try them out and see the results for yourself."

Goldstein agreed. "Achieving speed improvements at the server level makes the team faster," he said. "Faster processing means more builds. More builds means more iteration and more iteration leads to a higher quality product."

ABOUT TURTLE ROCK

Turtle Rock Studios, originally established in 2002, is an award-winning independent developer of AAA video games. In 2008, it was acquired by Valve Corporation, and in 2011, Chris Ashton and Phil Robb re-established it under the company's original name. Turtle Rock Studios' most notable games include *Left 4 Dead* and *Evolve*. For more information, visit turtlerockstudios.com.

ABOUT AMD

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