

# It's 2024! Can AMD graphics cards surpass Nvidia in ray tracing capabilities?

In computer graphics, ray tracing is a technique that creates an image by tracing the path of light through pixels on an image plane and simulating its effects when interacting with objects. surrounding virtual objects.

In simple terms, ray tracing helps improve lighting quality in 3D environments, enhancing lighting effects for game objects based on simulating how light reflects and refracts in the real world.

AMD began researching ray tracing technology with the RDNA 2 platform. However, after many years, there are still many opinions that Nvidia is truly the 'king' in the field of ray tracing, while AMD is still just a player. 'apprentice'. is that true?

## How ray tracing is handled by AMD and Nvidia graphics cards

Nvidia has focused on investing heavily in ray tracing technology over the past few years, starting with the launch of the RTX graphics card line with a dedicated RT (Ray Tracing) core in 2018 and achieving a lot of success. On the other side, AMD's answer came a little late in 2020, with the launch of the RX 6000 series of GPUs. One of AMD's most notable efforts to improve ray tracing processing is Ray Accelerators, is integrated directly into the GPU architecture and contributes to improving the ray tracing performance of standard compute units.

Essentially, Nvidia's dedicated cores tend to perform better at ray tracing, but they also increase the cost of graphics cards. While Nvidia has better ray tracing performance overall than AMD, the question is how much better, and is the difference worth the significantly higher price?



The first comparison point is in the high-end graphics card segment with two representatives: AMD RX 7900 XTX compared to Nvidia, depending on resolution, game, and whether enhancements are enabled. As a side note, the RX 7900 XTX is \$200 cheaper than the RTX 4080 at list price, and performs slightly better than the RTX 4080 with ray tracing turned off. Therefore, it can be said that ray tracing is still Nvidia's main competitive advantage over products from AMD, and is also one of the reasons explaining the higher selling price.

At the higher end of the current GPU market, Nvidia has a clear advantage over AMD in ray tracing capabilities. However, is performance comparison appropriate for the product segment that is cheaper but still belongs to the current generation? Daniel Owen, one of the world's most respected GPU reviewers, performed rigorous ray leak performance tests on the AMD RX 7600 against the Nvidia RTX 4060. The results showed that the RTX 4060 performed well about 10% better than the RX 7600 when ray tracing is turned off, and about 20% better when it is turned on. Notably, Nvidia's card has a list price of about 20% more expensive, so choosing the RTX 4060 will make sense in terms of value if you really have a high need for ray tracing capabilities. On the contrary, if you do not care about this feature, the RX 7600 XT will help save a significant amount of money.

Perhaps the most interesting performance comparison results are between the AMD RX 7800 XT and the Nvidia RTX 4070. In another GPU test, we found that the RX 7800 XT also beat Nvidia's card when ray tracing is turned off. Please note, the RTX 4070 is more expensive than the RX 7800 XT at both list price and market price. Therefore, it can be said that AMD has somewhat defeated Nvidia in the mid-range segment.

One of the other things worth noting is that the upscaling aspect—specifically DLSS and FSR—makes a big difference when ray tracing is enabled. Upgrading may reduce ray tracing performance.

## Does AMD have plans to improve ray tracing performance?

AMD has worked very hard over the past few years to improve ray tracing performance on its products. As we saw above, some AMD card lines have even outperformed Nvidia in ray tracing capabilities in some segments, despite lacking dedicated RT cores.

Looking at the whole process, it can be confirmed that ray tracing performance on AMD graphics cards will get better and better. TechRadar suggests that RDNA 4—AMD's upcoming generation of GPUs—will bring much-anticipated improvements in ray tracing performance, but we'll have to wait until RDNA 5 to achieve groundbreaking ray tracing performance.

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