AMD

RADEON PRO

with CINEMA 4D

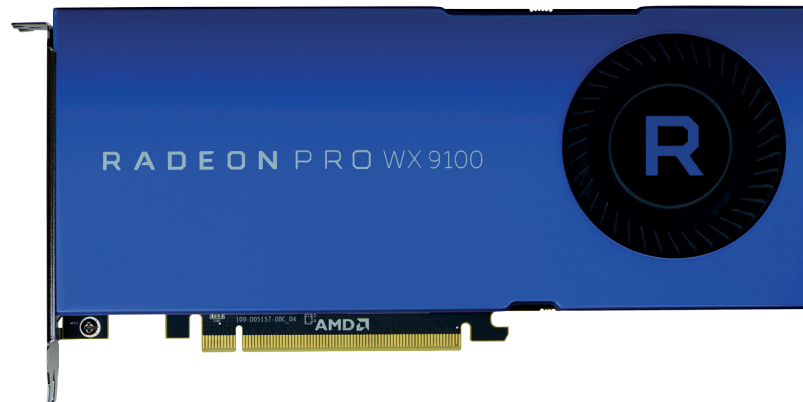# RADEON

PRORENDER

Radeon™ ProRender is a powerful and versatile new ray tracer, based on OpenCL™. It is designed to unleash the full power of multiple GPUs and even uses CPUs as a fallback. This flexibility led MAXON to integrate Radeon ProRender natively into the next generation of their award-winning 3D solution Cinema 4D.

The AMD Radeon™ Pro WX 9100 graphics card, based on AMD's new "Vega" architecture with 16GB of high bandwidth memory, is the perfect partner for Radeon ProRender in Cinema 4D. You can use more than one card if you want to go really fast

pro.radeon.com
pro.radeon.com/en-us/software/prorender

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Cover image:
A concept model of a
sports bike created by
CGPdesign and rendered
by Glen Johnson using
Cinema 4D's Radeon
ProRender renderer

Welcome

Cinema 4D users now have a powerful new way to create photorealistic imagery, thanks to MAXON Computer's recent work with AMD.

First integrated in 2017, AMD's Radeon™ ProRender is an intuitive physically based GPU render engine – and in Cinema 4D R20, it has grown even more powerful, with new features like motion blur, subsurface scattering and multi-pass rendering designed to help it slot into modern production pipelines.

Being based on OpenCL™, the open standard for GPU computing, Radeon ProRender will work with virtually any combination of CPUs and GPUs, but as a leading proponent of OpenCL, AMD's professional graphics cards are specially optimized for the job.

On Windows, artists can take advantage of powerful but affordable GPUs like the Radeon™ Pro WX 9100, with its 16GB of graphics RAM. Mac® users benefit from the AMD Radeon™ Pro GPUs built into current iMac® workstations and 15-inch MacBook Pro® laptops, and the Radeon™ Pro Vega cards inside new iMac Pro® workstations.

And no matter which operating system you use, an AMD graphics card running in an external GPU breakaway box like Sonnet's eGFX series can give you an extra speed boost on those tricky rendering jobs. To find out more, read on.

Rob Jamieson
ISV Manager, AMD

Radeon™ ProRender and Cinema 4D R20

Whether you work on Windows® or macOS®, Cinema 4D's powerful GPU-based renderer harnesses the power of AMD graphics cards

With GPU-based rendering now an essential workflow for CG artists, MAXON Computer wanted to integrate a GPU render engine into Cinema 4D, its professional 3D software.

Unlike third-party solutions based on proprietary technology, the new renderer had to perform well on any user's system, whatever hardware or operating system they chose.

Enter Radeon ProRender, AMD's powerful, physically based GPU render engine. First integrated in Cinema 4D R19, Radeon ProRender enables artists to create photorealistic imagery quickly and intuitively, adjusting only a small number of settings – and being based on the OpenCL™ standard, it runs on virtually any combination of CPUs and GPUs, on both Windows and macOS.

"Radeon ProRender is a fast, highly interactive way to render images," says Oliver Meiseberg, MAXON's Chief Product Officer. "Artists can achieve the results they like much faster, and present changes to clients. It saves a lot of time iterating on designs."

In Cinema R20, Radeon ProRender has been even more deeply integrated into the software, with a set of new features helping the renderer slot

seamlessly into standard modern post-production pipelines.

"In 2017, we wanted to get Radeon ProRender into our users' hands. This year, we're integrating it even more deeply into Cinema 4D," says Andres Hildebrandt, MAXON's Vice Director for Marketing. "In Cinema 4D R20, Radeon ProRender supports render layers, subsurface scattering and motion blur. Having those things is a game-changer. Radeon ProRender was already very good for rendering stills, but now it can render animated content like previs, too."

Although Radeon ProRender supports any manufacturer's hardware, as one of the key proponents of the standard, AMD's professional graphics cards are heavily optimized for OpenCL acceleration, helping to ensure optimum performance on even the most demanding of production tasks.

On Windows, AMD's Radeon™ Pro WX 7100 and Radeon™ Pro WX 9100 GPUs deliver 8GB and 16GB of VRAM at a lower cost to competing cards, meaning that even large real-world production scenes fit fully into graphics memory when rendering.

On macOS, Radeon ProRender harnesses the power of the AMD Radeon™ Pro GPUs built into current iMac® workstations and 15-inch MacBook Pro® laptops, and the Radeon™ Pro Vega cards inside new iMac Pro® workstations. Mac® users can also now get an extra power boost on tricky rendering jobs by running AMD's Radeon™ Pro WX Series cards in an external breakaway box.

"We're very proud of the features we've integrated into Radeon ProRender in the past two years," concludes Andres Hildebrandt. "Co-operation between AMD and MAXON has intensified. We get all of AMD's professional graphics cards to test, and we're always overwhelmed with their stability, and the advancements from card to card."

Accelerate renders with external GPUs

Connecting to a computer via Thunderbolt 3, external GPU breakaway boxes like Sonnet's eGFX series enable both Windows and Mac users to boost the performance of their systems with AMD's powerful Radeon Pro WX 7100, Radeon Pro WX 9100 and Radeon Pro SSG graphics cards.

In tests conducted by MAXON, the motorbike model shown above was rendered in Radeon ProRender in Cinema 4D R20. Connecting an external Radeon Pro WX 9100 GPU cuts render times dramatically – and the effect is scalable, with two external GPUs cutting render times still further.
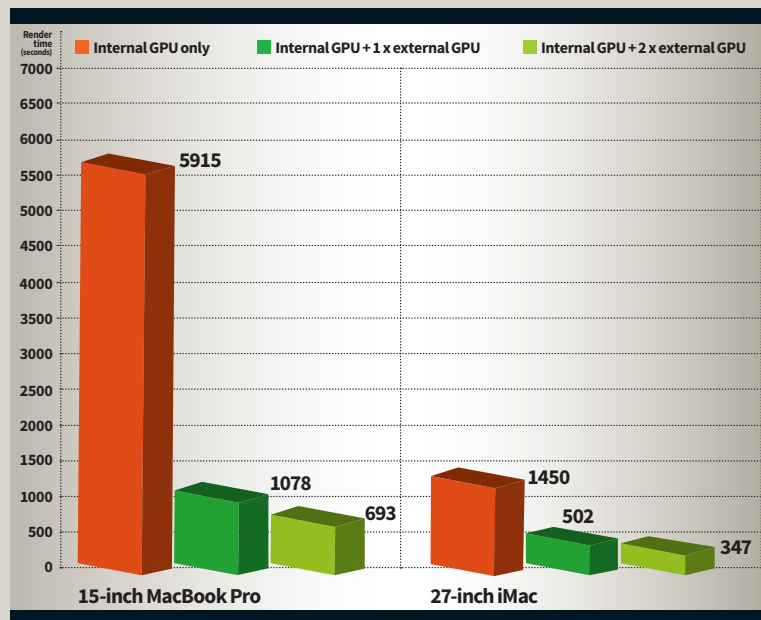
Tests conducted by MAXON Computer in June 2018 on macOS 10.13.4 using a mid-2017 15-inch MacBook Pro with a 2.9 GHz quad-core Intel Core i7 CPU, AMD Radeon Pro 560 internal GPU and 16 GB DDR4 memory, and a mid-2017 27-inch 5K iMac with a 4.2 GHz quad-core Intel Core i7 CPU, AMD Radeon Pro 580 internal GPU and 16 GB DDR4 memory.

Günter Nikodim

The work of this freelance artist tests Cinema 4D's VFX tools – and that of its new Radeon™ ProRender render engine – to their limits

Few people push Cinema 4D harder than Günter Nikodim. Over the past five years, the freelance CG artist has worked on a series of ambitious visual effects sequences for Austrian movies and TV series, ranging from simulating floods and landslides to recreating the city of Vienna in 3D.

"Cinema 4D is the perfect tool for smaller businesses," says Nikodim. "In most jobs, my highest priority is to deliver things quickly. Cinema 4D has a very streamlined workflow, and good connections to compositing software like Nuke."

That makes Cinema 4D ideal for Cybertime, the boutique VFX house with which Nikodim often works. For the memorably titled 2013 movie Bad Fucking – named after a village in Austria, and actually pronounced 'fooking' – the studio simulated both a landslide and a tidal wave carrying a shoal of 3,000 eels, with Nikodim using Cinema 4D for all the dynamics work.

For 2016 TV mini-series Das Sacher: In Bester Gesellschaft, set around Vienna's famous Hotel Sacher, Nikodim and four other artists turned around 200 VFX shots in two months, including a full CG sequence showing the city of Vienna in the background: again created entirely in Cinema 4D.

Besides Cinema 4D, Nikodim uses few other tools in production: Nuke and After Effects for compositing, and RealFlow for fluid simulation. Although Cybertime used to use SynthEyes for 3D tracking, that role has now largely been taken over by Cinema 4D's own built-in motion tracker.
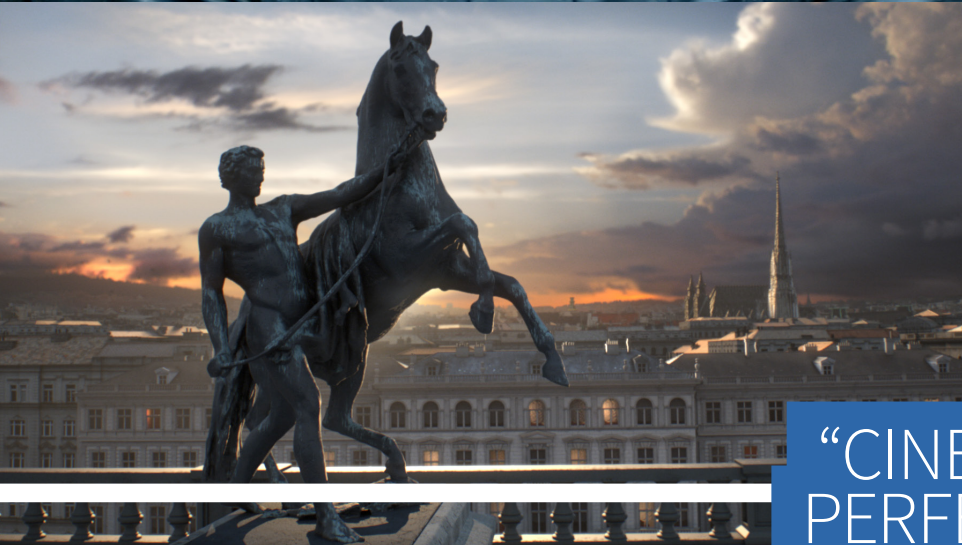
Main image: Günter Nikodim created this T. rex entirely in Cinema 4D, recently using it to test the new features in the built-in Radeon ProRender renderer

This page: Stills from the memorably titled Austrian movie Bad Fucking (above) and TV series Das Sacher: In Bester Gesellschaft (left). Key elements of the visual effects were created in Cinema 4D

"CINEMA 4D IS THE PERFECT TOOL FOR SMALLER STUDIOS"

"It's a big advantage that these toolsets are integrated," says Nikodim. "Cinema 4D is easy to use, but you can work procedurally, and the character rigging tools are great."

In production, Nikodim still uses an old tower Mac Pro®, albeit one with a 12-core CPU, AMD's ATI Radeon™ HD 5870 GPU, and up to 64GB of RAM.

"I only add something to my toolset if I really need it," he explains. "It only matters that it works for the job, and that it runs stably and reliably."

Recently, Nikodim has been pushing the stability of Radeon ProRender, AMD's physically correct GPU renderer, to its limits. In his work as a beta tester, he trialled the new Radeon

ProRender features in Cinema 4D R20 on his own personal test scene: a production-quality model of a T. rex.

Again, the asset was modelled, painted, rigged and animated entirely in Cinema 4D: Nikodim originally created it to test the sculpting tools in Cinema 4D R14 and has been updating it steadily ever since.

Of those new options available in Radeon ProRender in R20, Nikodim singles out motion blur – "a great addition, because it makes [the renderer] suitable for any kind of animation" – subsurface scattering, and multi-pass rendering.

"In my day-to-day work, I use multi-pass rendering a lot," he says.

"It's amazing that we have it in Radeon ProRender now."

Even on Nikodim's home computer – a standard games machine with a quad-core CPU, consumer GPU and 16GB of RAM – render times were low, with a full HD walk animation clocking in at just 10 minutes per frame.

Nikodim also praises the speed with which a scene can be set up for rendering. "The beauty of a GPU renderer like Radeon ProRender is that you have beautiful lighting immediately," he says. "I could just change the HDRI file to experiment with how the model would look in different environments. You get a first impression extremely quickly."

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