The Vulkan Graphics API Is Here—and Your NVIDIA GPU Is Ready

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If you're a GeForce gamer, you already have what you need to take advantage of what the Vulkan API can do. If you're a developer, you will now have the choice of a new tool that will give you more control, and greater performance, on a broad range of devices.

Our support for Vulkan, on the day it launches, not just on multiple platforms, but in cutting-edge games such as *The Talos Principle*, has some of the industry's most respected observers taking notice.

"To be able to play a game like *The Talos Principle* on the same day an API launches, is an unheard of achievement," said Jon Peddie, president of Jon Peddie Research. "NVIDIA's multi-platform compatibility and fully conformant driver support across many operating systems is a testament to the company's leadership role in Vulkan's development."

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What Is Vulkan?

Vulkan is a low level API that gives direct access of the GPU to developers who want the ultimate in control. With a simpler, thinner driver, Vulkan has less latency and overhead than traditional OpenGL or Direct3D. Vulkan also has efficient multi-threading capabilities so that multi-core CPUs can keep the graphics pipeline loaded, enabling a new level of performance on existing hardware.

Vulkan is the first new generation, low-level API that is cross platform. This allows developers to create applications for a variety of PC, mobile and embedded devices using diverse operating systems. Like OpenGL, Vulkan is an open, royalty-free standard available for any platform to adopt. For developers who prefer to remain on OpenGL or OpenGL ES, NVIDIA will continue to drive innovations on those traditional APIs too.

Who's Behind Vulkan?

Vulkan was created by the Khronos Group, a standards organization that brings together a wide range of hardware and software companies, including NVIDIA, for the creation of open standard, royalty-free APIs for authoring and accelerated playback of dynamic media on a wide variety of platforms and devices. We're proud to have played a leadership role in creating Vulkan. And we're committed to helping developers use Vulkan to get the best from our GPUs.

Why You Should Care

Vulkan is great for developers. It reduces porting costs and opens up new market opportunities for applications across multiple platforms. Best of all, the NVIDIA drivers needed to take advantage of Vulkan are already here. On launch day we have Vulkan drivers available for Windows, Linux, and Android platforms. See our Vulkan driver page for all the details.

Here's what Vulkan will mean for you:

- **For gamers with GeForce GPUs:** Vulkan's low latency and high-efficiency lets developers add more details and more special effects to their games, while still maintaining great performance. Because a Vulkan driver is thinner with less overhead, application developers will get fewer performance surprises. This translates to smoother, more fluid experiences.

  NVIDIA is shipping fully-conformant Vulkan drivers for all GeForce boards based on Kepler or Maxwell GPUs running Windows (Windows 7 or later) or Linux. "We have been using NVIDIA hardware and drivers on both Windows and Android for Vulkan development, and the reductions in CPU overhead have been impressive," said Oculus Chief Technology Officer John Carmack.GeForce gamers will be the first to play the Vulkan version of *The Talos Principle*, a puzzle game from Croteam that also shipped today. "We've successfully collaborated with the NVIDIA driver support team in the past, but I was amazed with the work they did on Vulkan," said Croteam Senior Programmer Dean Sekuliuc. "They promptly provided us with the latest beta drivers so we were able to quickly implement the new API into Serious Engine and make The Talos Principle one of the first titles supporting Vulkan. Smooth!"<

- **For professional application developers using Quadro:** Our Vulkan and OpenGL drivers use an integrated binary architecture that enables the use of GLSL shaders in Vulkan. Developers also have the flexibility to continue using OpenGL or plan a smooth transition from OpenGL to Vulkan to take advantage of Vulkan's new capabilities. For example, Vulkan's multi-threaded architecture can enable multiple CPU cores to prepare massive amounts of data for the GPU faster than before. For design and digital content creation applications, this means enhanced interactivity with large models.

- **For mobile developers using Tegra:** We're making Vulkan available to developers for both Android and Linux. Vulkan will ship alongside OpenGL ES as a core API in a future version of Android. This means that standard Android will have a state-of-the-art API with integrated graphics and compute, ultimately unleashing the GPU in Tegra for cutting-edge vision and compute applications, as well as awesome gaming graphics. Developers can use Vulkan on NVIDIA SHIELD Android TV and SHIELD tablets for Android coding, and Jetson for embedded Linux development.

How to Learn More About Vulkan

To learn more, click here or stop by our upcoming GPU Technology Conference in San Jose, CA, April 4-7, where we'll have a full slate of Vulkan sessions.

We can't wait to see what you do with the combination of Vulkan, NVIDIA drivers, and NVIDIA GPUs.