Vulkan SDK, 工具和驱动程序已为光线追踪做好准备

支持光线追踪的 Vulkan SDK 今日发货，内含验证层，着色工具，实例，以及升级后支持 Vulkan 光线追踪的开发者指南。

多家 GPU 厂家正在发货产品驱动程序

俄勒冈州彼佛顿市 – 2020 年 12 月 15 日 – 6:00 AM 太平洋时间 – 今天, 科纳斯组织 (Khronos® Group), 作为一个由工业界主流公司组成的创建先进的互联标准的开放协会，宣布 LunarG 发布了 Vulkan Software Development Kit (SDK) 1.2.162.0 版本。这个版本对于新的 Vulkan 光线追踪扩展的完整支持, 包括了验证层和升级版 GLSL, HLSL, 以及 SPIR-V 着色工具链的集成。科纳斯开源的 Vulkan Samples 和 Vulkan Guide 也已经升级, 来诠释光线追踪的技术。最后, 随着 AMD 与英伟达公司交付产品驱动程序, 开发者现在可以容易地将 Vulkan 光线追踪集成到他们的应用中去。

科纳斯在 2020 年 11 月 发布 了最终版的 Vulkan 光线追踪扩展, 来无缝地集成光线追踪功能与 Vulkan 的光栅化架构, 使得 Vulkan 成为工业界第一个用于光线追踪加速的具有开放性, 跨厂商, 跨平台的标准。部署 Vulkan 光线追踪, 可以使用现有的 GPU 计算机, 或者专用于光线追踪的核心机。Vulkan SDK 目前集成了开发者需要的所有元素，这样就不需要使用多个套件库来重建，也可以容易地使用扩展，譬如新的着色工具链。而且 Vulkan SDK 在 SDK 验证层里支持光线追踪的验证。

英伟达公司的高级图像系统软件工程师，同时也担任科纳斯 Vulkan 光线追踪 TSG 小组主席的 Daniel Koch 说，“API 规范的发货只是为 Vulkan 光线追踪建立开发者生态系统的第一步。我们现在有工具和实例，来真正地能让开发者接触到跨平台光线追踪加速的能量”，“开发者社区的一个主要诉求，是能够容易地把 DirectX 12 光线追踪 (DXR) 的编码带进 Vulkan。通过交付一个详细设计的 DXR 的子集，我们已经做到了这一点，并且在 DXC 开源 HLSL 编译器里集成了 Vulkan 的光线追踪支持”。

Vulkan Ray Tracing Ready For Development -- December, 2020
就如今年早些时候阐述的，在 Vulkan 里使用生产就绪型的 HLSL, 已经可以通过把一个 SPIR-V 后端集成进微软的开源 HLSL 编译器 DXC, 来得以实现。Vulkan 光线追踪的支持现在已经被集成进 DXC, 这样便使得开发者能够在 Vulkan 光线追踪应用里使用 HLSL 着色器，包括将 DXR 里面的光线追踪应用移植到 Vulkan。Vulkan 也被用作为一种后端，来为那些 API (如 DirectX 12) 做分层的实施。通过设计 Vulkan 光线追踪，这些如 vkd-Proton 之类的项目，能够有效地支持在 Vulkan 上分层的 DXR。

用于产品的 Vulkan 驱动程序，包括 Vulkan 光线追踪的扩展，从基于视窗和 Linux 的 AMD Radeon Adrenalin 20.11.3 和 NVIDIA R460 drivers for both GeForce and Quadro 开始，现在正在为 AMD 和英伟达公司的 GPU 发货。2021 年开始，通过例行的驱动升级来提供驱动支持，英特尔公司的 Xe-HPG GPUs 也将支持 Vulkan 光线追踪的扩展。

科纳斯组织及其会员提供的其他相关材料，包括博客与教程，在这里可以看到：
Description of the Vulkan Ray Tracing Extensions
How to use the Vulkan Ray Tracing extensions
Vulkan Hybrid Rendering Best Practices
NVIDIA Vulkan Ray Tracing Tutorial
NVIDIA Mini Path Tracer Tutorial
NVIDIA Open Source Vulkan Ray Tracing-based glTF Viewer
Quake II RTX using Vulkan Ray Tracing source on GitHub
Holochip’s use of Vulkan Ray Tracing for Light Field Rendering

科纳斯将会通过 Github 上的 Vulkan 问题追踪器，不断关注开发者对于 Vulkan 光线追踪扩展与生态系统动态的反馈。

**工业界对于 Vulkan 光线追踪的支持**

“4A Games was one of the earliest adopters of hardware level ray tracing by developing the first Real-Time Raytraced Global Illumination system in a video game as released in Metro Exodus, and we are excited at the addition of a vendor agnostic Vulkan implementation in the industry. We look forward to seeing how this technology progresses,” said Oleksandr “Oles” Shyshkovtsov, CTO, 4A Games.
“Standardizing ray tracing in Vulkan is an important step towards making ray tracing available across a wide range of devices, as well as enabling developers to use this technology to its full advantage. AMD supports all of the major features in this extension, including ray shading and ray queries in our AMD Radeon Software Adrenalin Edition driver. We are also working with developers to ensure great performance from our Vulkan Ray Tracing implementation thanks to hardware ray tracing support on AMD RDNA™ 2 architecture-based graphics cards; these efforts will help us to provide end-users with even more visually stunning graphics on AMD Radeon™ graphics cards,” said Andrej Zdravkovic, senior vice president, software development, AMD.

"During the development of Rage 2 and other games, Vulkan gave us great flexibility when looking at deployment on multiple platforms. As the Apex Engine looks to adopt and avail of the latest hardware developments, it is great to see Vulkan keeping pace and investing in support for cutting edge features like hardware accelerated ray tracing," said John Fuller, managing director, Avalanche Studios Group.

“Being one of the first adopters of Vulkan in our Rocksolid Engine already in 2015, we’re thrilled to now add support for Vulkan Ray Tracing. The first product to feature raytraced effects like reflections and global illumination will be the forthcoming GPUScore benchmark. We’re also working to introduce ray tracing for automotive instrument clusters and other in-car screens and Vulkan Ray Tracing extensions are important enablers for this,” said Tero Sarkkinen, Founder and Chairman of the Board of Basemark.

"Blender’s mission is to get the best of the world's CG technology in the hands of artists as free/open source software. Industry-wide accepted open standards are essential for our goal. For that reason I'm proud to see the industry having agreed on the Vulkan ray tracing API. This is going to be huge! For us, the upcoming ray tracing functionality was a big motivation for why we are working on Vulkan real-time rendering already since 2019," said Ton Roosendaal, chairman Blender Foundation.
“In the past 20 years, rasterization techniques were at the core of innovation in real-time rendering. At Crytek, the Vulkan API is playing a major part in driving advancements in this area, helping us to deliver a high-performance game-engine with outstanding visuals across different platforms and operating systems. We are pleased that Khronos is releasing vendor-independent Vulkan Ray Tracing extensions that define essential functionality for bringing real-time ray tracing to Vulkan supported applications. Similar to the rasterization domain, this extension plays a major part in our plans for offering cutting edge ray-tracing functionality in CRYENGINE, while benefiting greatly from hardware-specific implementations of each vendor,” said Theodor Mader, technical director, CRYENGINE/Crytek.

“With the 3DEXPERIENCE Platform Dassault Systèmes provides business and people with virtual universes to imagine sustainable innovations for today and tomorrow. Our rendering technology serves a multitude of industries and use-cases, ranging from high-performance, real-time scenarios to high-quality GI and physical light simulation. Vulkan Ray Tracing enables us to bring hardware accelerated ray tracing into the hands of our users in a cross-platform and vendor agnostic way. This is huge!” said Nicolas Jean, R&D technology rendering manager, Dassault Systèmes.

“At EA we inspire the world to play and are dedicated to jointly developing open standards that empower developers to push creative boundaries for compute and graphics, like Vulkan Ray Tracing. We are excited about this release from Khronos as it will pioneer future innovations that deliver extraordinary experiences for players.” said Colin Barré-Brisebois, head of technology at SEED, Electronic Arts.

“At Epic Games we have always been committed to the advancement of open standards and cross-platform systems that give people freedom of choice and control over their creativity. As early adopters of ray tracing technologies we are thrilled to see Khronos releasing Vulkan Ray Tracing extensions as part of the Vulkan SDK and we’re excited about the possibilities that this release opens up for Unreal Engine creators.” said Juan Cañada, Ray Tracing Lead Engineer, Epic Games.
“Holochip develops light field technology for the U.S. military and is incorporating glasses-free 3D visualization capabilities into existing environments. The Vulkan SDK Ray Tracing release will enable wide adoption of Holochip’s real-time light-field rendering solutions across numerous display devices - from headsets, lenticular screen, tabletop, CAVE and volumetric displays to next-generation holographic and other 3D displays. This release paves the way for military environments to benefit from the technical advances in the commercial 3D imaging and ray tracing markets. These advances will provide greater situational awareness across land, sea, space and cyber, leading to greater effectiveness, cost savings and risk reduction in areas such as Command and Control (C2), planning, training, maintenance and medicine. Click here to learn more about Holochip’s real-time light-field rendering solutions,” said Robert Batchko CEO of Holochip Corporation.

“Imagination Technologies has a decade-long commitment to creating innovative ray tracing hardware IP across a wide spectrum of platforms. The release of Vulkan’s ray tracing framework will give developers unrivalled freedom to create applications across our hardware platforms and provide new, unique graphical experiences on a variety of upcoming mobile devices,” said Mark Butler, vice president of software engineering at Imagination Technologies.

“At Intel Architecture Day 2020, we announced that new GPUs based on the gaming-optimized Xe-HPG architecture will be available in 2021 and feature hardware acceleration for ray tracing. We’re thrilled to see Khronos push graphics forward with new ray tracing extensions and we look forward to providing driver updates and additional details when we launch next year,” said Lisa Pearce, vice president, Intel Architecture, graphics and software.

“The Glacier Engine has a Vulkan backend that powers HITMAN3 on Stadia. At IO Interactive we follow with interest the evolution of the API and the upcoming extensions. Ray Tracing is a topic we’re actively working on for our games, so we’re very excited to see hardware agnostic support coming into Vulkan,” said Maurizio De Pascale, CTO, IO Interactive A/S.
The arrival of a vendor agnostic approach to hardware accelerated ray tracing in Vulkan will impact our industry in a similar fashion as the arrival of hardware transform & lighting, flexible shaders, or compute shaders did. I for one am looking forward to seeing how it’s going to be used,” said Jim Kjellin, CTO, MachineGames AB.

“NVIDIA has taken a leadership role in bringing ray tracing to Vulkan, enabling developers with cross-platform access to RTX acceleration. Today we are rolling out Vulkan Ray Tracing in our production drivers and have upgraded Quake II RTX to be the world’s first cross-vendor ray tracing Vulkan application,” said Dwight Diercks, senior vice president of software engineering, NVIDIA.

“Vulkan Ray Tracing is a milestone for the computer graphics industry at large. For the first time, graphics developers are able to leverage hardware ray tracing through a fully performant, cross platform and vendor agnostic API. OTOY is thrilled to have participated in the Khronos Group’s development and ratification of the new Vulkan Ray Tracing extensions. We are actively using these extensions to deploy future Vulkan versions of OctaneRender - OTOY’s industry-leading cinematic GPU spectral path-tracer - as well as forthcoming Vulkan releases of OTOY’s AnimeRender, Brigade, Sculptron and RNDR,” said Jules Urbach, CEO, OTOY Inc.

“Quantic Dream are currently implementing ray tracing into our upcoming projects with the help of the new Vulkan ray tracing extensions. It allows us to improve our graphics tremendously and we can’t wait to share the results! In general we find the arrival of vendor agnostic ray tracing to be an excellent development for the industry,” said Ronan Marchalot, Quantic Dream

“SiliconArts is excited to support the Vulkan cross platform ray tracing API with options for hybrid rendering. This expands the potential for both content creators and new cloud and client rendering architectures,” Dr. Hyungmin Yoon, CEO and founder, SiliconArts.
“The arrival of a hardware agnostic ray tracing API is a great development for the graphics industry, arguably it’s one of the most exciting things to have happened in recent years. At Traverse Research, we’re heavily invested in the future of ray tracing as a technology and we are able to bring our expertise in this area to a range of companies. We’re very excited about this announcement, and have been involved in this effort since its earliest days,” said Jasper Bekker, founder, Traverse Research.

“Cross-platform raytracing is a big deal. We are excited about the possibilities this opens up for our partners and customers,” said Don Holden, software engineer, Valve.

关于 Vulkan
Vulkan 是一种针对现代 GPU 高效及跨平台接入的，开放及免版权费的 API。它在主流的引擎，高端的游戏，和高要求的应用中有着广泛的采纳。从视窗和 Linux 的个人电脑，游戏机，云端，到移动电话和内嵌平台这些各类的设备，都支持 Vulkan。

有关科纳斯组织
科纳斯组织是一个由 150 家主流的硬件和软件公司所组成的开放，非赢利，会员驱动的工业协会。该协会创建先进的，免税的，在 3D 图像，增强和虚拟现实，并行编程，视觉加速，和机器学习方面的互通性标准。科纳斯的活动包括 Vulkan®, OpenGL®, OpenGL® ES, WebGL™, SPIR-V™, OpenCL™, SYCL™, OpenVX™, NNEF™, OpenXR™, 3D Commerce™, ANARITM 和 gITF™。科纳斯会员驱动科纳斯规范的开发和演进，通过早期介入规范的草案拟定和一致性测试，使得他们能够加速交付自己尖端的平台及应用。

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Khronos®和 Vulkan®属于科纳斯组织的注册商标，SPIR-V™是科纳斯组织的商标。OpenXR™是科纳斯组织拥有的商标，并且在中国，欧盟，日本和联合王国注册为一个商标。OpenCL™是苹果公司的商标。OpenGL®作为一个注册的商标以及 OpenGL ES™ 和 OpenGL SC™ 的标识 Logo，都是惠普企业在科纳斯授权下使用的商标。所有其他的产品名字，商标，和/或公司名字的使用只是为了辨识的需要，并且属于它们相应的拥有者。

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