NVIDIA® OptiX™ Ray Tracing SDK

Release Notes

Version 7.0.0 July 29, 2019

Welcome to the 7.0.0 release of the OptiX SDK. This is the first release of the NVIDIA OptiX 7 API. OptiX 7 introduces a new low-level CUDA-centric API giving application developers direct control of memory, compilation, and launches while maintaining the programming model and shader types from previous versions of OptiX. It also includes a library that provides helper functions to load textures on demand.

System Requirements (for running binaries referencing OptiX)

Graphics Hardware:

- All NVIDIA GPUs of Compute Capability 5.0 (Maxwell) or higher are supported.

Graphics Driver:

- OptiX 7.0.0 requires that you install the 435.80 driver on Windows or the 435.12 Driver for linux.. Note OptiX dll from the SDK are no longer needed since the symbols are loaded from the driver.
- Windows 7/8.1/10 64-bit; Linux RHEL 4.8+ or Ubuntu 10.10+ 64-bit

CUDA Toolkit

- It is **not** required to have any CUDA toolkit installed to be able to run OptiX-based applications.

Development Environment Requirements (for compiling with OptiX)

- CUDA Toolkit 7, 8, 9, 10

OptiX 7.0.0 has been built with CUDA 10.1, but any specified toolkit should work when compiling PTX for OptiX. OptiX uses the CUDA device API, but the CUDA runtime API objects can be cast to device API objects.

- C/C++ Compiler

A compiler compatible with the used CUDA Toolkit is required. Please see the CUDA Toolkit documentation for more information on supported compilers.

Features in OptiX 7.0.0

- Minimal host state is maintained. Scene graphs, materials, etc., are managed by the application rather than by OptiX.
- GPU memory is managed by the application using CUDA. (No OptiX buffers or variables)
- GPU launches are explicit and asynchronous using CUDA streams.
- Shader compilation is explicit. (Similar to DXR or Vulkan)
- All host functions are thread-safe.

- Source code for demand loading library is included and designed for direct inclusion in production applications.
- Multi-GPU operation is managed by the application.

Known Issues

1. AABB computation helpers (SRT AABB computation & AABB key count resampling) for motion AS are not yet available
2. Multi-tile support for the denoiser is not yet implemented
3. optixGetTriangleVertexData returns corrupted data for some triangles in larger triangle meshes.
4. Refitting an IAS on hardware without RTcores currently crashes
5. None of the samples perform gamma correction
6. OPTIX_DENOISER_INPUT_RGB_ALBEDO_NORMAL is not currently supported in the Denoiser.
7. Pixel formats OPTIX_PIXEL_FORMAT_UCHAR3 and OPTIX_PIXEL_FORMAT_UCHAR4 are not supported by the Denoiser.
8. Concurrent launches from the same pipeline will serialize automatically on the device.
9. Indirect function calls including virtual function calls are not supported, but may not generate the correct or any error message.