NVAPI Public SDK for Driver Release 520

Release Notes

Table of Contents

NVAPI Release Notes 3

Introduction 3

Changes in NVAPI for Driver Release 520 4

New Functions 4

New/Updated Structures 4

New/Updated Enums 5

New/Updated Unions 5

New Macros 5

TCC Support 6

Deprecated NVAPI Functions 6

NVAPIDriverSettings Removals 6

HLSL Extension Additions 6

NVAPI Security Information 6

About the Sample Code 6

Notice 8

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NVAPI Release Notes

Introduction

NVAPI is NVIDIA's core software development kit that allows direct access to NVIDIA GPUs and drivers on all windows platforms. NVAPI provides support for categories of operations that range beyond the scope of those found in familiar graphics APIs such as DirectX and OpenGL.

The following files are provided by NVIDIA:

- nvapi.h
- nvapi_lite_common.h
- nvapi_lite_d3dext.h
- nvapi_lite_salend.h
- nvapi_lite_salstart.h
- nvapi_lite_sli.h
- nvapi_lite_stereo.h
- nvapi_lite_surround.h
- NvApiDriverSettings.c
- NvApiDriverSettings.h
- nvHLSLExtns.h
- nvHLSLExtnsInternal.h
- nvShaderExtnEnums.h
- \x86\nvapi.lib
- \amd64\nvapi64.lib
- \doc\NVAPI_Reference_Developer.chm
- \doc\NVAPI SDKs Samples and Tools License Agreement (Public).pdf

These release notes describe the changes made in the NVAPI NDA SDK for the Release 520 driver.

Changes in NVAPI for Driver Release 520

New Functions

- Added NvAPI_D3D12_SetAsyncFrameMarker
- Added NvAPI_D3D12_NotifyOutOfBandCommandQueue
- Added NvAPI_D3D12_GetRaytracingCaps
- Added NvAPI_D3D12_GetRaytracingOpacityMicromapArrayPrebuildInfo
- Added NvAPI_D3D12_SetCreatePipelineStateOptions
- Added NvAPI_D3D12_CheckDriverMatchingIdentifierEx
- Added NvAPI_D3D12_GetRaytracingAccelerationStructurePrebuildInfoEx
- Added NvAPI_D3D12_RelocateRaytracingOpacityMicromapArray
- Added NvAPI_D3D12_BuildRaytracingOpacityMicromapArray
- Added NvAPI_D3D12_EmitRaytracingOpacityMicromapArrayPostbuildInfo
- Added NvAPI_D3D12_BuildRaytracingAccelerationStructureEx
- Added NvAPI_GPU_GetMemoryInfoEx

New/Updated Structures

- Added NVAPI_D3D12_RAYTRACING_OPACITY_MICROMAP_USAGE_COUNT
- Added NVAPI_D3D12_RAYTRACING_OPACITY_MICROMAP_DESC
- Added NVAPI_D3D12_BUILD_RAYTRACING_OPACITY_MICROMAP_ARRAY_INPUTS
- Added NVAPI_D3D12_RAYTRACING_OPACITY_MICROMAP_ARRAY_PREBUILD_INFO
- Added NVAPI_GET_RAYTRACING_OPACITY_MICROMAP_ARRAY_PREBUILD_INFO_PARAMS_V1
- Added NVAPI_D3D12_SET_CREATE_PIPELINE_STATE_OPTIONS_PARAMS_V1
- Added NVAPI_CHECK_DRIVER_MATCHING_IDENTIFIER_EX_PARAMS_V1
- Added NVAPI_D3D12_RAYTRACING_GEOMETRY_OMM_ATTACHMENT_DESC
- Added NVAPI_D3D12_RAYTRACING_GEOMETRY_OMM_TRIANGLES_DESC
- Added NVAPI_D3D12_RAYTRACING_GEOMETRY_DESC_EX
- Added NVAPI_D3D12_BUILD_RAYTRACING_ACCELERATION_STRUCTURE_INPUTS_EX
- Added NVAPI_GET_RAYTRACING_ACCELERATION_STRUCTURE_PREBUILD_INFO_EX_PARAMS_V1
- Added NVAPI_D3D12_BUILD_RAYTRACING_OPACITY_MICROMAP_ARRAY_DESC
- Added NVAPI_D3D12_RAYTRACING_OPACITY_MICROMAP_ARRAY_POSTBUILD_INFO_CURRENT_SIZE_DESC
- Added NVAPI_D3D12_RAYTRACING_OPACITY_MICROMAP_ARRAY_POSTBUILD_INFO_DESC
- Added NVAPI_BUILD_RAYTRACING_OPACITY_MICROMAP_ARRAY_PARAMS_V1
- Added NVAPI_RELOCATE_RAYTRACING_OPACITY_MICROMAP_ARRAY_PARAMS_V1

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- Added NVAPI_EMIT_RAYTRACING_OPACITY_MICROMAP_ARRAY_POSTBUILD_INFO_PARAMS_V1
- Added NVAPI_D3D12_BUILD_RAYTRACING_ACCELERATION_STRUCTURE_DESC_EX
- Added NVAPI_BUILD_RAYTRACING_ACCELERATION_STRUCTURE_EX_PARAMS_V1
- Added NV_GPU_MEMORY_INFO_EX_V1

New/Updated Enums

- Added OUT_OF_BAND_RENDERSUBMIT_START to enum NV_LATENCY_MARKER_TYPE
- Added OUT_OF_BAND_RENDERSUBMIT_END to enum NV_LATENCY_MARKER_TYPE
- Added OUT_OF_BAND_PRESENT_START to enum NV_LATENCY_MARKER_TYPE
- Added OUT_OF_BAND_PRESENT_END to enum NV_LATENCY_MARKER_TYPE
- Added NV_OUT_OF_BAND_CQ_TYPE
- Added NVAPI_D3D12_RAYTRACING_THREAD_REORDERING_CAPS
- Added NVAPI_D3D12_RAYTRACING_OPACITY_MICROMAP_CAPS
- Added NVAPI_D3D12_RAYTRACING_CAPS_TYPE
- Added NVAPI_D3D12_RAYTRACING_OPACITY_MICROMAP_ARRAY_BUILD_FLAGS
- Added NVAPI_D3D12_RAYTRACING_OPACITY_MICROMAP_FORMAT
- Added NVAPI_D3D12_SERIALIZED_DATA_TYPE_EX
- Added NVAPI_D3D12_RAYTRACING_ACCELERATION_STRUCTURE_BUILD_FLAGS_EX
- Added NVAPI_D3D12_RAYTRACING_GEOMETRY_TYPE_EX
- Added NVAPI_D3D12_RAYTRACING_OPACITY_MICROMAP_SPECIAL_INDEX
- Added NVAPI_D3D12_RAYTRACING_INSTANCE_FLAGS_EX
- Added NVAPI_D3D12_RAYTRACING_OPACITY_MICROMAP_ARRAY_POSTBUILD_INFO_TYPE
- Added NVAPI_D3D12_RAYTRACING_OPACITY_MICROMAP_STATE
- Added NVAPI_RAY_FLAG_EX
- Added NVAPI_D3D12_PIPELINE_CREATION_STATE_FLAGS
- Added NV_GPU_ARCHITECTURE_AD100 to enum NV_GPU_ARCHITECTURE_ID
- Added NV_GPU_ARCH_IMPLEMENTATION_AD102 to enum NV_GPU_ARCH_IMPLEMENTATION_ID
- Added NV_GPU_ARCH_IMPLEMENTATION_AD103 to enum NV_GPU_ARCH_IMPLEMENTATION_ID
- Added NV_GPU_ARCH_IMPLEMENTATION_AD104 to enum NV_GPU_ARCH_IMPLEMENTATION_ID

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New/Updated Unions

- None

New Macros

- None

TCC Support

- None

Deprecated NVAPI Functions

- NvAPI_GPU_GetMemoryInfo
- NvAPI_GetDisplayDriverMemoryInfo

NVAPIDriverSettings Removals

- None

HLSL Extension Additions

- NvTraceRayHitObject
- NvMakeHit
- NvMakeHitWithRecordIndex
- NvMakeMiss
- NvMakeNop
- NvInvokeHitObject

NVAPI Security Information

User administrator privilege is required to access certain driver features, as per NVIDIA's overall security vision. This helps mitigate the impact of malware.

Each API which requires administrator access (when run with standard user privilege) will return the error: NVAPI_INVALID_USER_PRIVILEGE

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The application will require Administrator privileges to access this API, which can be elevated to a higher permission level by selecting "Run as Administrator" in Admin approval mode.

About the Sample Code

Sample code is provided with the SDK package that demonstrates the following features:

- Custom Timing
- Display Color Control
- Display Configuration
- I2C
- QSYNC Event Registration
- Sync_Configuration

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