

VkPhysicalDeviceProperties & VkPhysicalDeviceFeatures

```
void vkGetPhysicalDeviceProperties(  
    VkPhysicalDevice physicalDevice, ← VkPhysicalDevice  
    VkPhysicalDeviceProperties* pProperties  
);
```

VkPhysicalDeviceProperties

```
uint32_t apiVersion; //4206797  
uint32_t driverVersion; //2182037824  
uint32_t vendorID; // 4318  
uint32_t deviceID; // 9479  
VkPhysicalDeviceType deviceType; // VK_PHYSICAL_DEVICE_TYPE_DISCRETE_GPU = 2,  
char deviceName[VK_MAX_PHYSICAL_DEVICE_NAME_SIZE=16];  
// NVIDIA GeForce RTX 3050  
uint8_t pipelineCacheUUID[VK_UUID_SIZE];  
// 7bc3bbe9d284d0cb29162032ef3d4e8e  
  
VkPhysicalDeviceLimits limits;  
VkPhysicalDeviceSparseProperties sparseProperties;
```

VkPhysicalDeviceLimits

```
maxImageDimension1D: 32768  
maxImageDimension2D: 32768  
maxImageDimension3D: 16384  
maxImageDimensionCube: 32768  
maxImageArrayLayers: 2048  
maxTexelBufferElements: 134217728  
maxUniformBufferRange: 65536  
maxStorageBufferRange: 4294967295  
maxPushConstantSize: 256  
maxMemoryAllocationCount: 4294967295  
maxSamplerAllocationCount: 4096  
bufferImageGranularity: 1024  
sparseAddressSpaceSize: 109951162775  
maxBoundDescriptorSets: 32  
maxPerStageDescriptorSamplers: 1048576  
maxPerStageDescriptorUniformBuffers: 1048576  
maxPerStageDescriptorStorageBuffers: 1048576  
maxPerStageDescriptorSampledImages: 1048576  
maxPerStageDescriptorStorageImages: 1048576  
maxPerStageDescriptorInputAttachments: 1048576  
maxPerStageResources: 4294967295  
maxDescriptorSetSamplers: 1048576  
maxDescriptorSetUniformBuffers: 1048576  
maxDescriptorSetUniformBuffersDynamic: 15  
maxDescriptorSetStorageBuffers: 1048576  
maxDescriptorSetStorageBuffersDynamic: 16  
maxDescriptorSetSampledImages: 1048576  
maxDescriptorSetStorageImages: 1048576  
maxDescriptorSetInputAttachments: 1048576  
maxVertexInputAttributes: 32  
maxVertexInputBindings: 32  
maxVertexInputAttributeOffset: 2047  
maxVertexInputBindingStride: 2048  
maxVertexOutputComponents: 128  
maxTessellationGenerationLevel: 64  
maxTessellationPatchSize: 32  
maxTessellationControlPerVertexInputComponents: 128  
maxTessellationControlPerVertexOutputComponents: 128  
maxTessellationControlPerPatchOutputComponents: 128  
maxTessellationControlTotalOutputComponents: 4216  
maxTessellationEvaluationInputComponents: 128  
maxTessellationEvaluationOutputComponents: 128  
maxGeometryShaderInvocations: 32  
maxGeometryInputComponents: 128  
maxGeometryOutputComponents: 128  
maxGeometryOutputVertices: 1024  
maxGeometryTotalOutputComponents: 1024  
maxFragmentInputComponents: 128  
maxFragmentOutputAttachments: 8  
maxFragmentDualSrcAttachments: 1  
maxFragmentCombinedOutputResources: 4294967295  
maxComputeSharedMemorySize: 49152  
maxComputeWorkGroupCount: (2147483647, 65535, 65535)  
maxComputeWorkGroupInvocations: 1024  
maxComputeWorkGroupSize: (1024, 1024, 64)  
subPixelPrecisionBits: 8  
subTexelPrecisionBits: 8  
mipmapPrecisionBits: 8  
maxDrawIndexedIndexValue: 4294967295  
maxDrawIndirectCount: 4294967295  
maxSamplerLodBias: 15  
maxSamplerAnisotropy: 16  
maxViewports: 16  
maxViewportDimensions: (32768, 32768)  
viewportBoundsRange: (-65536, 65536)  
viewportSubPixelBits: 8  
minMemoryMapAlignment: 64  
minTexelBufferOffsetAlignment: 16  
minUniformBufferOffsetAlignment: 64  
minStorageBufferOffsetAlignment: 16  
minTexelOffset: -8  
maxTexelOffset: 7  
minTexelGatherOffset: -32  
maxTexelGatherOffset: 31  
minInterpolationOffset: -0.5  
maxInterpolationOffset: 0.4375  
subPixelInterpolationOffsetBits: 4  
maxFramebufferWidth: 32768  
maxFramebufferHeight: 32768  
maxFramebufferLayers: 2048  
framebufferColorSampleCounts: 0xf  
framebufferDepthSampleCounts: 0xf  
framebufferStencilSampleCounts: 0x1f  
framebufferNoAttachmentsSampleCounts: 0x1f  
maxColorAttachments: 8  
sampledImageColorSampleCounts: 0xf  
sampledImageIntegerSampleCounts: 0xf  
sampledImageDepthSampleCounts: 0xf  
sampledImageStencilSampleCount: 0x1f  
storageImageSampleCounts: 0xf  
maxSampleMaskWords: 1  
timestampComputeAndGraphics: 1  
timestampPeriod: 1  
maxClipDistances: 8  
maxCullDistances: 8  
maxCombinedClipAndCullDistances: 8  
discreteQueuePriorities: 2  
pointSizeRange: (1, 2047.94)  
lineWidthRange: (1, 64)  
pointSizeGranularity: 0.0625  
lineWidthGranularity: 0.0625  
strictLines: 1  
standardSampleLocations: 1  
optimalBufferCopyOffsetAlignment: 1  
optimalBufferCopyRowPitchAlignment: 1  
nonCoherentAtomSize: 64
```

VkPhysicalDeviceSparseProperties

```
VkBool32 residencyStandard2DBlockShape; // 1  
VkBool32 residencyStandard2DMultisampleBlockShape; // 1  
VkBool32 residencyStandard3DBlockShape; // 1  
VkBool32 residencyAlignedMipSize; // 0  
VkBool32 residencyNonResidentStrict; // 1
```

```
void vkGetPhysicalDeviceFeatures(  
    VkPhysicalDevice physicalDevice, ← VkPhysicalDevice  
    VkPhysicalDeviceFeatures* pFeatures);
```

VkPhysicalDeviceFeatures

```
robustBufferAccess: 1  
fullDrawIndexUint32: 1  
imageCubeArray: 1  
independentBlend: 1  
geometryShader: 1  
tessellationShader: 1  
sampleRateShading: 1  
dualSrcBlend: 1  
logicOp: 1  
multiDrawIndirect: 1  
drawIndirectFirstInstance: 1  
depthClamp: 1  
depthBiasClamp: 1  
fillModeNonSolid: 1  
depthBounds: 1  
wideLines: 1  
largePoints: 1  
alphaToOne: 1  
multiViewport: 1  
samplerAnisotropy: 1  
textureCompressionETC2: 0  
textureCompressionASTC_LDR: 0  
textureCompressionBC: 1  
occlusionQueryPrecise: 1  
pipelineStatisticsQuery: 1  
vertexPipelineStoresAndAtomics: 1  
fragmentStoresAndAtomics: 1  
shaderTessellationAndGeometryPointSize: 1  
shaderImageGatherExtended: 1  
shaderStorageImageExtendedFormats: 1  
shaderStorageImageMultisample: 1  
shaderStorageImageReadWithoutFormat: 1  
shaderStorageImageWriteWithoutFormat: 1  
shaderUniformBufferArrayDynamicIndexing: 1  
shaderSampledImageArrayDynamicIndexing: 1  
shaderStorageBufferArrayDynamicIndexing: 1  
shaderStorageImageArrayDynamicIndexing: 1  
shaderClipDistance: 1  
shaderCullDistance: 1  
shaderFloat64: 1  
shaderInt64: 1  
shaderInt16: 1  
shaderResourceResidency: 1  
shaderResourceMinLod: 1  
sparseBinding: 1  
sparseResidencyBuffer: 1  
sparseResidencyImage2D: 1  
sparseResidencyImage3D: 1  
sparseResidency2Samples: 1  
sparseResidency4Samples: 1  
sparseResidency8Samples: 1  
sparseResidency16Samples: 1  
sparseResidencyAliased: 1  
variableMultisampleRate: 1  
inheritedQueries: 1
```