

WebGPU Basics

Whats and Whys

Visually illustrate the role (purpose) of popular WebGPU components in the bigger picture (high-level)

GPUBuffer

Buffer

GPUBufferDescriptor

usage	} uniform vertex index
size	
... bytes	

GPUSize64



device.createBuffer(...)

GPUTexture

Texture

GPUTextureDescriptor

format	} depth24plus bgra8unorm rgba8unorm ...
...	
...	

GPUTextureView

TextureView



texture.createView(...)

device.createTexture(...)

GPURenderPipeline

Pipeline

GPURenderPipelineDescriptor

layout	GPUPipelineLayout
vertex	GPUVertexState
fragment	GPUFragmentState
primitive	GPUPrimitiveState
depthStencil	GPUDepthStencilState



device.createRenderPipeline(...)

WGSL Shaders

WebGPU Shader Language (WGSL)

Vertex Shader

GPUShaderModuleDescriptor

binding: 0
binding: 1
...

device.createShaderModule(...)

Fragment Shader

GPUShaderModuleDescriptor

binding: 0
binding: 1
...

device.createShaderModule(...)

Compute Shader

device.createShaderModule(...)

GPUAdapter

WebGPU API

GPUDevice

Device

GPUDeviceDescriptor

adapter.requestDevice(...)

GPUCanvasContext

Context

GPUCanvasConfiguration

device	GPUDevice
format	GPUTextureFormat
size	GPUExtent3D
usage	GPUTextureUsageFlags

context.configure(...)

canvas.getContext('webgpu')

navigator.gpu.requestAdapter(...)

GPUBindGroup

Binding Group

GPUBindGroupDescriptor

entries	} Resources
binding: 0	
binding: 1	

...

GPUBindGroupLayout

Binding Group Layout

GPUBindGroupLayoutDescriptor

entries	} Types
binding: 0	
binding: 1	

...

device.createBindGroupLayout(...)

device.createBindGroup(...)