

# **Install Vulkan SDK on Mac**

**Lina Liu Nov.12 2022**

# Vulkan SDK Introduction

## What is Khronos Vulkan API?

1. What is Khronos Vulkan API?
  1. Vulkan API is explicit
  2. Vulkan API is low-overhead
  3. Vulkan API is cross-platform graphics API
  4. Vulkan API is cross-platform compute API
  5. Vulkan API over operating system
  6. Vulkan API on wide variety of devices as PC/  
mobile/embedded platforms

# Vulkan SDK Introduction

## What does Vulkan SDK do?

2. What does Vulkan SDK do?
  1. Vulkan SDK enables Vulkan Developer to develop Vulkan applications
3. What does Vulkan SDK include?
  1. Vulkan API usage validation
  2. Vulkan Layer configuration
  3. SPIR-V shader compilation
  4. SPIR-V shader optimization
  5. SPIR-V shader validation
  6. Vulkan System report

# MoltenVK

## Vulkan SDK that used on macOS, iOS platforms

### 4. How to use MoltenVK?

1. Link directly to the MoltenVK static or dynamic library
  1. You can direct access to the Vulkan API
  2. It is not practical if you wish to maintain portability of your Vulkan rendering code across platforms
  3. You will sacrifice the ability to use the Vulkan validation layers
  4. However, **this is the only way to use MoltenVK on mobile devices.**
  5. On mobile devices, XCFramework is provided as a static library that can be linked directly to your application.
2. Use MoltenVK dynamic library in conjunction with the Vulkan loader.
  1. **This is generally used on desktop applications**
  2. In this mode, you link only to the Vulkan loader, and not the MoltenVK library directly.
  3. You will include the MoltenVK and the Vulkan Loader dynamic libraries in your application bundle when distributing your software.
  4. Use Vulkan loader and Vulkan validation layers instead of linked to the static MoltenVK library, why?
    1. You can debugging your Vulkan rendering code by using tremendous boon

# Terminology

Term	Description
ICD	Installable Client Driver, on desktop side, the MoltenVK take this role
GLSL	OpenGL Shader Language
Vulkan Instance	The Vulkan API object that stores all per-application states
Vulkan Layer	A library designed to work as a plug-in for the loader. Provide validation and debugging functionality to applications
Vulkan Loader	A library 1. implements the Vulkan API entry points and 2. manages layers, extensions, and drivers It is found in the independent hardware vendor driver installs
SPIR-V	Standard Portable Intermediate Representation A cross-API intermediate language(IL) represents parallel compute and graphics programs

# Terminology Architecture

