**Graphics Windowing Utilities**

This document is compares several popular windowing libraries, in order to assess its suitability for Vulkan applications:

**Supported platforms, and Graphics API backends**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Utility Name** | **Vulkan** | **OpenGL** | **OpenGLES** | **DirectX** | **Windows** | **Linux** | **Android** | **OS X** | **iPhone** |
| WSIWindow | **Y** | N | N | N | Y | Y | Y | N | N |
| GLFW | **Y** | Y | N | N | Y | Y | N | Y | N |
| GLFM | **N** | N | Y | N | N | N | Y | N | Y |
| SFML | **N** | Y | N | N | Y | Y | soon[[1]](#footnote-2) | Y | soon |
| SDL | **N** | Y | Y | Y | Y | Y | Y | Y | Y |
| FreeGLUT | **N** | Y | Y | N | Y | Y | Y | Y | Y |

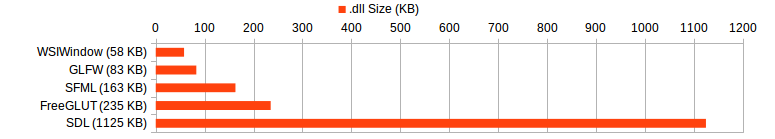
|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Utility Name** | **Keyboard** | **Mouse** | **Multi-touch** | **Joystick** | **Sensors** | **Audio** | **Networking** |  |
| WSIWindow | Y | Y | Y | N | N | N | N |  |
| GLFW | Y | Y | N | Y | N | N | N |  |
| GLFM | incomplete | N | Mobile only | N | N | N | N |  |
| SFML | Y | Y | Mobile only | Y | N | Y | Y |  |
| SDL | Y | Y | N | Y | N | Y | N |  |
| FreeGLUT | Y | Y | TODO | Y | TODO[[2]](#footnote-3) | N | N |  |

**Linux Windowing systems**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Utility Name** | **XCB** | **XLib** | **Wayland** | **Mir** |  |  |  |  |  |
| WSIWindow | Y | Y? | N | N |  |  |  |  |  |
| GLFW | N | Y | Y | Y |  |  |  |  |  |
| SFML | Y | Y | N | N |  |  |  |  |  |
| SDL | N | Y | WIP | WIP |  |  |  |  |  |
| FreeGLUT | N | Y | Y | N |  |  |  |  |  |

**Vulkan features**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Utility Name** | Create  a Window (non-Vulkan) | Build Dispatch table | Load  Vulkan Extensions | Load Validation Layers | Validation Debug Report | Query Presentation support | Create Vulkan Surface |  |  |
| WSIWindow | Y | Y | Y | Y | Y | Y | Y |  |  |
| GLFW | Y | N | Y | N | N | Y | Y |  |  |
| SFML | Y | N | N | N | N | N | N |  |  |
| SDL | Y | N | N | N | N | N | N |  |  |
| FreeGLUT | Y | N | N | N | N | N | N |  |  |



WSIWindow is intended to be used as a static linked library, rather than a separate .so or .dll. A major goal was to keep the binary footprint as small as possible, while avoiding any third-party dependencies, other than the OS, and Vulkan driver.

1. SFML already has some experimental Android and iPhone support, but its still incomplete. [↑](#footnote-ref-2)
2. FreeGLUT is planning to use Android’s Accelerometer and Gyroscope sensors to emulate a Joystick. [↑](#footnote-ref-3)