Platform

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REFERENCE:

Platform is a cross-platform rendering library and API.

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ABOUT PLATFORM

The Platform library was developed by Simul for use in trueSKY (simul.co/trueSKY), and has seen use in many indie and triple-A game titles and professional simulations. It provides a cross-platform API for modern rendering, abstracting the backend while maintaining support for up-to-date features. With Platform, you can have multiple API's working in a single process.

Shaders in Platform are compiled either offline or on-the-fly from sfx source files. Similar to the old fx or cgfx effect files, these can contain multiple shaders of different types as well as render state setup.

The intention with Platform is that it should take few lines of code to write real-time graphics applications, but that the final code should be well-optimized for rendering.

At the moment, due to its origins in trueSKY, Platform is quite focused on Compute and has incomplete support for other shader types.

SUPPORTED PLATFORMS

- Windows 10
- Linux
- PS4
- Xbox One
- Others...

SUPPORTED RENDERING API'S

- Direct3D 11
- Direct3D 12
- PS4
- OpenGL
- Vulkan
- CMake
- Python 3
- Git
- GitPython
- Visual Studio 2017 or later (Windows)
- Clang 8+ (Linux)

SETUP

To run the Python setup script, ensure that the git Python module is installed.

```
pip install GitPython
```

Now run Setup.py to update the submodules and build Platform for Windows x64.

CONFIGURING

With CMakeGui or a similar tool, you can configure Platform to your requirements. For example, individual API's such as Vulkan or D3D12 can be enabled or disabled.

SIX

COMPILING

By default for Windows, a Visual Studio solution Platform.sln will be created and built in Platform/build. To build for another platform:

Use the CMake cross-compiling toolchain file in Platform/[PlatformName]/CMake. Ensure that the x64 version is built first. In particular, other platforms use the Sfx effect compiler which is created at Platform/build/bin/Release/Sfx.exe.

6.1 API

6.1.1 Base Framebuffer

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::BaseFramebuffer" in doxygen xml output for project "Platform" from directory: build/xml

6.1.2 Camera

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::Camera" in doxygen xml output for project "Platform" from directory: build/xml

> **Warning:** doxygenstruct: Cannot find class "simul::crossplatform::CameraViewStruct" in doxygen xml output for project "Platform" from directory: build/xml

6.1.3 Command Line Paramaters

> **Warning:** doxygenstruct: Cannot find class "platform::core::CommandLineParams" in doxygen xml output for project "Platform" from directory: build/xml

6.1.4 ConstantBuffer

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::ConstantBuffer" in doxygen xml output for project "Platform" from directory: build/xml

6.1.5 Display Surface Manager

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::DisplaySurfaceManager" in doxygen xml output for project "Platform" from directory: build/xml

6.1.6 Effect

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::Effect" in doxygen xml output for project "Platform" from directory: build/xml

6.1.7 Effect Technique

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::EffectTechnique" in doxygen xml output for project "Platform" from directory: build/xml

6.1.8 Graphics Device Context

> **Warning:** doxygenstruct: Cannot find class "simul::crossplatform::GraphicsDeviceContext" in doxygen xml output for project "Platform" from directory: build/xml

6.1.9 HDR Renderer

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::HdrRenderer" in doxygen xml output for project "Platform" from directory: build/xml

6.1.10 Platform Structured Buffer

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::PlatformStructuredBuffer" in doxygen xml output for project "Platform" from directory: build/xml

6.1.11 Render Platform

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::RenderPlatform" in doxygen xml output for project "Platform" from directory: build/xml

6.1.12 Texture

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::Texture" in doxygen xml output for project "Platform" from directory: build/xml

6.1.13 View

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::View" in doxygen xml output for project "Platform" from directory: build/xml

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::ViewManager" in doxygen xml output for project "Platform" from directory: build/xml

6.2 Reference

6.2.1 Core

Base Mouse Handler

> **Warning:** doxygenclass: Cannot find class "simul::base::BaseMouseHandler" in doxygen xml output for project "Platform" from directory: build/xml

Command Line Paramaters

> **Warning:** doxygenstruct: Cannot find class "platform::core::CommandLineParams" in doxygen xml output for project "Platform" from directory: build/xml

Default File Loader

> **Warning:** doxygenclass: Cannot find class "simul::base::DefaultFileLoader" in doxygen xml output for project "Platform" from directory: build/xml

File Loader

> **Warning:** doxygenclass: Cannot find class "simul::base::FileLoader" in doxygen xml output for project "Platform" from directory: build/xml

Memory Interface

> **Warning:** doxygenclass: Cannot find class "simul::base::MemoryInterface" in doxygen xml output for project "Platform" from directory: build/xml

Timer

> **Warning:** doxygenclass: Cannot find class "simul::base::Timer" in doxygen xml output for project "Platform" from directory: build/xml

6.2.2 Math

Matrix

> **Warning:** doxygenclass: Cannot find class "simul::math::Matrix" in doxygen xml output for project "Platform" from directory: build/xml

Matrix4x4

> **Warning:** doxygenclass: Cannot find class "simul::math::Matrix4x4" in doxygen xml output for project "Platform" from directory: build/xml

Noise1D

> **Warning:** doxygenclass: Cannot find class "simul::math::Noise1D" in doxygen xml output for project "Platform" from directory: build/xml

Noise2D

> **Warning:** doxygenclass: Cannot find class "simul::math::Noise2D" in doxygen xml output for project "Platform" from directory: build/xml

Noise3D

> **Warning:** doxygenclass: Cannot find class "simul::math::Noise3D" in doxygen xml output for project "Platform" from directory: build/xml

Quaternion

> **Warning:** doxygenclass: Cannot find class "simul::math::Quaternion" in doxygen xml output for project "Platform" from directory: build/xml

6.2.3 CrossPlatform

Base Framebuffer

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Buffer

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Camera

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> **Warning:** doxygenstruct: Cannot find class "simul::crossplatform::MouseCameraInput" in doxygen xml output for project "Platform" from directory: build/xml

> **Warning:** doxygenstruct: Cannot find class "simul::crossplatform::MouseCameraState" in doxygen xml output for project "Platform" from directory: build/xml

> **Warning:** doxygenstruct: Cannot find class "simul::crossplatform::Frustum" in doxygen xml output for project "Platform" from directory: build/xml

Device Context

> **Warning:** doxygenstruct: Cannot find class "simul::crossplatform::DeviceContext" in doxygen xml output for project "Platform" from directory: build/xml

Display Surface

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::DisplaySurface" in doxygen xml output for project "Platform" from directory: build/xml

Display Surface Manager

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Effect

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> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::ConstantBuffer" in doxygen xml output for project "Platform" from directory: build/xml

GPU Profiler

> **Warning:** doxygenclass: Cannot find class "simul::crossplatform::GpuProfilingInterface" in doxygen xml output for project "Platform" from directory: build/xml

Graphics Device Context

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HDR Renderer

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Layout

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> **Warning:** doxygenstruct: Cannot find class "simul::crossplatform::LayoutDesc" in doxygen xml output for project "Platform" from directory: build/xml

Pixel Format

> **Warning:** doxygenstruct: Cannot find class "simul::crossplatform::PixelFormat" in doxygen xml output for project "Platform" from directory: build/xml

> **Warning:** doxygenstruct: Cannot find class "simul::crossplatform::ShaderResourceType" in doxygen xml output for project "Platform" from directory: build/xml

Platform Structured Buffer

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Quaternion

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Render Platform

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Text Renderer

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Texture

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View

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ViewStruct

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