

Vulkan Express – Documentation

The implementation uses Vulkan Graphics API with GLSL shaders with the Auto-Vk-Toolkit framework and is based on the model-loader example project. No additional libraries were used, only the ones already included in the project such as GLFW and GLM.

The Project was tested on systems using the following GPUs:

- Nvidia RTX 5070
- Intel Iris XE Graphics (Core i5-1335U)
- Intel Iris Xe Graphics (i7-13700H)
- Intel Arc A380M Graphics

Effects:

- Blinn phong illumination model was added to the diffuse fragment shader. Can be observed on the moving train
- Simple Shadow-Mapping was implemented as part of the Volumetric Lighting
- Volumetric Lighting was added and can be observed as smoke coming from the engine of the train
- GPU Vertex Skinning was implemented as seen in the person running after the train

Controls:

- The camera can be controlled via WASD and Q and E for vertical movement.
- The Camera moves automatically the movement can be stopped and restarted by pressing C

Changes made before presentation:

- Added Complex Effect *Shadow Map with manual PCF*
- Smoke is now occluded by objects closer to camera

