

REGEN
Realtime Graphics & Simulation Engine

Rendering Core

- LOD & culling (CPU + GPU path)
- Terrain & vegetation & weather
- Deferred shading, direct shading
- Volumetric effects, post-processing

Simulation Core

- Swarm simulation (CPU + GPU path)
- Fluid simulation (render-to-texture)
- Particle system (VS + feedback)
- Rigid body dynamics (Bullet)

Agent / AI Core

- Semantic world model
- Behavior tree
- Bone controller & animation blending
- Navigation & collision avoidance

Core Systems Layer

- GPU-CPU staging system
 - Client memory management
 - Threaded execution & synchronization
 - Compute & draw indirection
- adaptive ring buffers, scheduled copies
lock-free, thread-safe, frame-locked
lightweight primitives, job assignment
GPU radix sort + histogram + prefix scan

Platform / API Layer

- Graphics APIs
 - Asset loading
 - GPU testing
 - Platform support
- OpenGL 4.6, GLSL, libnoise
AssImp, DevIL, STB, Freetype, ffmpeg
AMD / NVIDIA / Intel
Linux / Windows