Egine Engine Software Requirements

# Functionality

The Egine Physics Engine is an Open Source C++ library that makes use of the DirectX graphics API to accurately simulate physics-based animations.

## Implemented Features

* Object-drawing
* Basic (AABB-based) collision detection
* Unit testing framework

## Planned Features

* Advanced collision detection
  + Off-center collisions
  + Non-axis-aligned object orientation
  + Object elasticity
* Gravity
* Air Resistance
* UI for object creation/manipulation/destruction
* User-defined physics constants
* Collision avoidance
* Multi-object structure creation
* Multiple simulation modes
  + High-precision, High-performance, etc.
* Far future
  + 3D
  + Games using API

# External Interfaces

An API will be developed. But that’s like, a long time from now.

# Performance

## Test System

The following performance requirements will be evaluated based on the following test system specifications:

CPU: Core i7 920 @ 2.67GHz  
RAM: 6GB DDR3 @ 1333MHz  
GPU: AMD Radeon HD 6870  
 Core Clock: 900MHz  
 Memory Clock: 4200MHz

## Up to 256 Physics Objects

Consistent 120 frames-per-second

## Up to 512 Physics Objects

Consistent 60 frames-per-second

## Up to 1024 Physics Objects

Consistent 30 frames-per-second

# Attributes

## Current

* Open Source (BSD License)
* C++ application
* Single-threaded
* Direct2D graphics library
* Windows-only

## Future

* Multi-threaded
* OpenGL graphics library
* Multi-platform