Project Number	TQP111
Project Title	Managing and rendering very large terrains
Project Description	Terrain rendering is very important for outdoor games. Current techniques to render terrain are texturing and shading, but the result is lack of detail either up close, in a distance, or at high angles. They are also memory consuming because of their big static color textures. For larger terrains needed for games like flight simulators, the rendering is even worse. The objective of this project is to create a new framework that can render a big terrain by using streaming technique to load the terrain on the fly and explore a procedural method to generate the terrain on the fly based on the low resolution data. The aim is also to improve the terrain's visualization by using multi shaders for different parts of the terrain, and add more controls by using procedural parameters. To summarize, the goals of the project are: • Long view distance with true horizon • 32x32 km visible, 2x2 – 4x4 playable • Ground destruction support • High detail up close and far away • Artist control • Low memory usage • Multiple high-resolution heightfield textures • Fixed grid LOD with vertex texture fetch, normals are calculated in the shader • Semi-procedural surface shaders • Allows dynamic compositing
Hardware/Software/References	• http://www.vterrain.org/LOD/ • Pixel Shader Optimizations for Terrain Rendering. Graphics Programming Methods. Charles River Media. (Kenny Mitchell EA) • file:///Y:/SIGGRAPH%202007%20Full%20Conference/Disc%201/content/courses/c28/c28.pdf