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Multi-texture mapping on terrain by the constraints based on random noise

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Introduction

With the development of virtual reality technology, three-dimensional terrain generation at home and abroad has also become the focus of attention in computer graphics field, which is widely used in military simulation, GIS systems, VR systems, and the game scene. However, the realism of the terrain will determine the degree of realism of the system and visual effects.

In the terrain generation process, its ups and downs of three-dimensional information distribution are not only determined by the elevation data(DEM), the distribution of texture mapping rendering also plays a big role and determines the topography of realism directly. This paper presents a means which is that with the grayscale image to provide terrain height field constraints, the random distribution of the image intensity information generated by the random noise as constraints of different texture mapping information is used to develop a realistic terrain scene.

The Terrain Texture Mapping Research

The current multi-texture mapping techniques is commonly used to improve the realism, which is the integration of multiple texture. Multiple texture mapping is to operate the texture in order to make multiple textures applied to the same polygon. The idea is to draw the graphic in the middle of each step and save the results into a texture. And then layers of texture are mapped to the collection texture. This technique is known as multi-texture rendering techniques(Figure 1 and Figure 2).

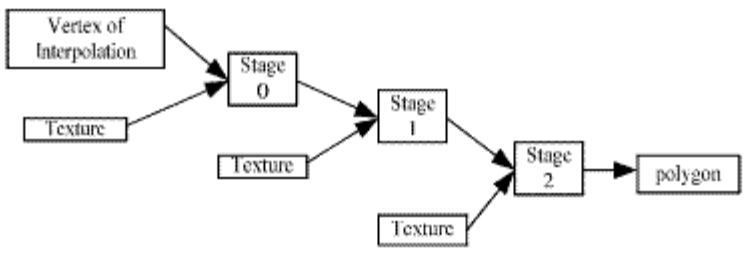

Figure 1 Multi-texture mapping