

## 2. Theoretical Tasks: Compression (5 Points)

### 2.1 Hardware

What makes it so important that texture compression algorithms are directly supported by the hardware?

Reading pixels from textures is the most fundamental and speed critical operation of GPUs. Compressed textures are only really useful when they don't slow this operation down.

### 2.2 Artifacts

ETC is a lossy texture compression algorithm. Describe what characteristics an image should have to make those losses clearly visible.

Sharp contrasts across block boundaries – for examples black lines across a white background.

### 2.3 Tilemaps

Outline an algorithm to display tilemaps correctly in a 3D environment.

MegaTextures (see script) solve this problem quite efficiently.