



Introduction:

The aim of this project is to build, with a combination of hardware and software, a Mandelbrot fractal generator and renderer. A Mandelbrot fractal image is created by coloring the complex plane according to how fast each point tend to infinity when iterated through a simple formula. The Mandelbrot set itself is actually only made up of the points that don't tend to infinity at all. Those are colored black.

The generator is written in the C-programming language and runs on an LC-3 CPU. The LC-3 is expanded with an external frame buffer and a coprocessor used to carry out arithmetic operations, directly on the board, for better performance and precision.

Instructions:

Move the mouse to the desired area you wish to magnify.
 Left-click to zoom in.
 Right-click to zoom out.
 Avoid zooming in on black areas since these require the most iterations to render.

