

Parallel Programming

Mandelbrot Assignment

Download the sequential program, mandelbrot.c which displays the Mandelbrot image (in black/white) on an Xwindows system. Compile and run the program normally.

Rewrite the program to operate as a pvm master/slave program (or an MPI program). Graphical output is to be produced using Xlib calls (see below).

Instrument code with time() or similar to determine time of execution.

Grading depends upon sophistication of the implementation:

Grading:

Fully documented working pvm code/static assignment with timing 90%

or Fully documented working pvm code/dynamic assignment with timing 100%

and Color output +10%

Without timing -10%

-10% per day late

Partial credit for non-working programs. Use at least four computers if your environment allows.

Submit email copy to Instructor. Include the code, the results of the program, and a one page description of the work with an image file (giff etc.)

Reference: Xlib Programming Manual Volume 1, O'Reilly & Associates Inc., 1989

Compiling

```
cc -I/usr/openwin/include -omandelbrot mandelbrot.c -L/usr/openwin/lib -lX11 -lm
```

where lX links the Xlib library. These are UNCC paths.

[Mandelbrot source program \(Download: Shift-Left button\)](#)