Heat-Distribution Simulation

Description :

Figure 6.11 shows a room has four walls and a fireplace. The temperature of the wall is 20ºC, and the temperature of the fireplace is 100ºC. Write MPI, Pthread, CUDA and OpenMP programs using Jacobi iteration to compute the temperature inside the room and plot (preferably in color) temperature contours at 5ºC intervals using Xlib or other GUI systems on your computers in each iteration. Instrument the code so that the elapsed time is displayed. Note that the room size is scalable, that is, the wall and fireplace length can be 50 and 20 ft, respectively.

Bonus (10 points)

Write an MPI + OpenMP program for the problem described above.

Where and What to Turn in Your Homework :

1. Please turn in a paper includes

   - Report
   - Performance analysis
   - The source code of your program

2. Send your source code to blackboard

3. No late homework assignment submission!!!