



Methods of Programming Systems with Shared Memory with OpenMP

1. Familiarize with OpenMP API

You can find documentation OpenMP API online <http://openmp.org/>

2. Implement Program to Detect Available Parameters

Write a program that detects the currently available number of processor elements (cores) (with access to shared shared memory or maximum number simultaneously (spatial parallelization) executable threads). Subsequently, it creates 6 threads and each thread writes to the screen own identification number.

3. Write a program for calculating the sum

$$S = \sum_{i=1}^{10^{10}} i^2$$

Perform the calculation using n threads, with n choosing from 1 to 8. Present dependence of execution time on threads number on a graph.

4. Write a parallel image sharpening program

The input will be a BMP image file, the output is sharpened image. Free libraries for working with bitmaps are available (for example: <http://easybmp.sourceforge.net>).