CSDLO6011 Department Level Optional Course -2 High Performance Computing AY 2023-24 DS and AIML

Module 4 - Performance Measures for HPC (Numerical on Gustafson's Law)

Return to: Topic 4

Gustafson-Barsis's Law example

A parallel program takes 134 seconds to run on 32 processors. The total time spent in the sequential part of the program was 12 seconds. What is the scaled speedup?

Here $\alpha = (134 - 12)/134 = 122/134$ so the scaled speedup is

$$(1 - \alpha) + \alpha N = \left(1 - \frac{122}{134}\right) + \frac{122}{134} \cdot 32 = 29.224$$

This means that the program is running approximately 29 times faster than the program would run on one processor..., assuming it *could* run on one processor.

Kindly note that Alpha is the fraction of problem can be parallelized.

Return to: Topic 4