Assignment 9Report

High Performance Computing

Pratik Mitra

James Smith

1. Fortran implementation of search algorithms (Assignment 9)

Report the CPU times for the execution of both the linear search and binary search for the case of the large array arr2. How much faster is the fastest algorithm with respect to the slowest one?

Testing on a sorted array

Linerar CPU TIME WAS: 2.884300000000001E-002

Index computed with linear search: 9999999   9999999

was the value found?: T

Binary CPU TIME WAS: 3.000000000003000E-006

Index computed with binary search: 9999999   9999999

was the value found?: T

Testing on an unsorted array

Index computed with linear search: 4999999

was the value found?: T

The binary algorithm is around one ten-thousandth of the CPU time of the linear CPU time. That makes it around '10,000 times faster', depending on how you look at things. The exact number is 9614.33 times the CPU time for the slower algorithm.