

Fortran to find nearest point from set in 3-D

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I'm looking for Fortran source code if possible.

Given set A with roughly 10,000 (x,y,z) triples and set B with roughly 1,000,000 (x,y,z) triples.

For each point in set A find the nearest point from set B.

What's the quickest algorithm?

A very slow algorithm would be to check all 1,000,000 triples in B for every point in A.

A slightly better algorithm would be to sort B by (x) in advance. If I was programming it from scratch that's what I'd do.

A slightly better algorithm than that would be to allocate every point in B to a 3-D cubic grid. Find the grid node closest to each point from A and search that and the surrounding 26 grid cubes for the closest.

I seem to remember that there's an even better algorithm than that, using a heirarchy of 3-D grids.

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