# SuperCon2009

Sponsored by CMC, Osaka University

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## Preliminaries Problem: "Area Counting"

Write a program that computes the area of the union of the given axis-parallel unit squares in the plane. For the Figure1-1 on the right, the answer is 172.

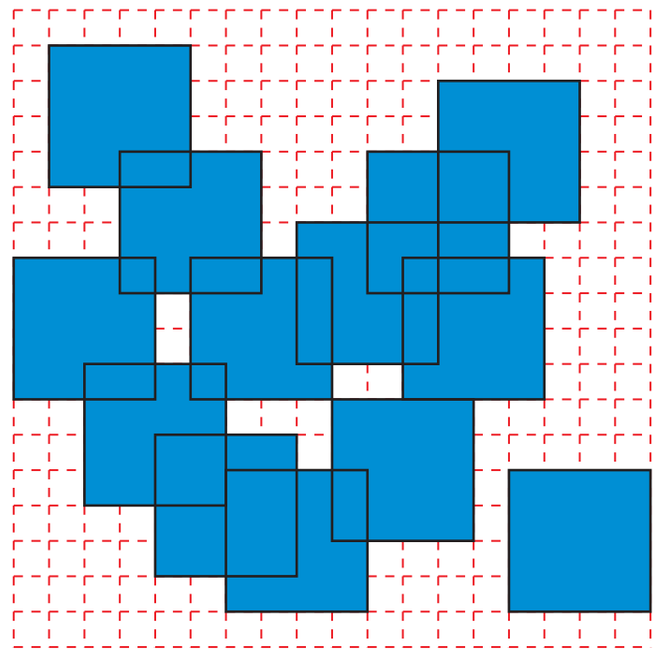

Figure1-1: Area Counting Problem

## Finals Problem: "Rescue in Space"


Figure 2-1: NEC SX-9

**The Contest was performed with the following hardware/software conditions:**

10 nodes of NEC SX-9 allocated in Osaka University: Each node has 1TB memory and 16 CPU cores (peak performance is 1.6TFLOPS). All teams used C language and compiler-assisted vector parallelization.

The Problem is to determine the star to rescue a crash-landed spaceship which sent us the photograph of the stars taken from another star.

Given an arbitrary number (N) of a fixed star in space, and 1000 pieces of the "all-sky photographs" (Figure2-2) taken from an arbitrary star among N stars, write a program that determines the stars from where the all-sky photographs were taken (1point) and what direction which directions the victims photograph in(1point). The participant got coordinates of stars in the universe and the all-sky photographs. All-sky photographs has "projections" which is defined as an intersection of a line from star "A" to other stars and a spherical surface whose center is star "A". The participants need to rescue the 1000 victims/universe in 4 universe. Only the participants who rescued enough victims on one universe can try to next universe.

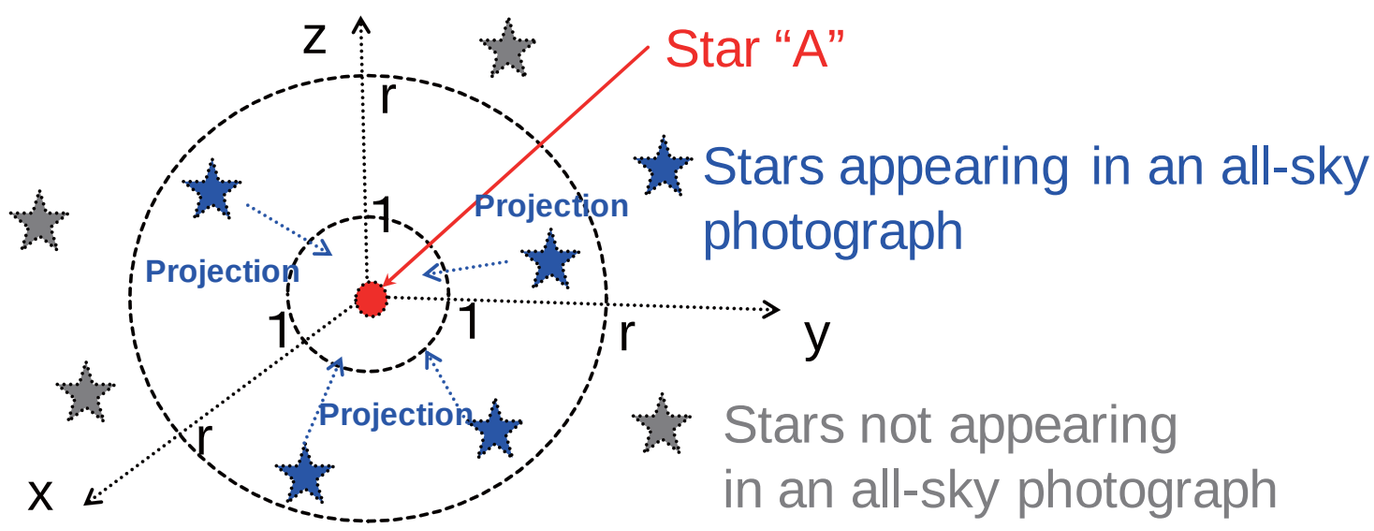


Figure2-2: All-sky photograph

**Results: Only 2 participants reached last universe.**
**The winner could search all 4 universe and get 1911 point on last universe.**

**Winner: team ZATORIKU**
**(HARA Masaki, YOSHIZATO Riku, KAWAI Shin'ichiro)**