

SuperCon '96

Sponsored by Computer Center, Tokyo Institute of Technology

SUPER COMPUTER CONTEST '96 FOR HIGH SCHOOL STUDENTS

Entry Exercise:

Write a program which calculates the natural logarithm of e to 1,500 digits of precision.

Contest Exercise: "Cafeteria Problem"

There is a cafeteria where you can choose from some set menus. Each kind of dish is served at an independent counter respectively. The guests are queuing for each set menu in front of the entrance. The guests follow the guidance of the manager at the entrance. That is; a guest proceeds to the entrance and receives a tray after called by the manager, then goes around the counters in the order specified by the manager and goes to the exit with the completed set on the tray.

Problem:

Write a program which guides the guests as the manager in order to shorten the time that all the guests complete their sets and reach the exit.

Conditions:

Set Menus

A-set Hamburger(3) + Salad(2) + Bread(1) + Soup(2) + Milk(1)

B-set Fried prawn(4) + Rice(2) + Milk(1) + Fruit(1)

C-set Beef steak(5) + Salad(2) + Rice(2) + Soup(2) + Fruit(1)

D-set Bread(1) + Salad(2) + Fruit(1) + Milk(1) + Soup(2)

*each figure in the parentheses indicates serving time

Number of waiting guests for each set

A-set 1000 persons B-set 750 persons C-set 500 persons D-set 500 persons

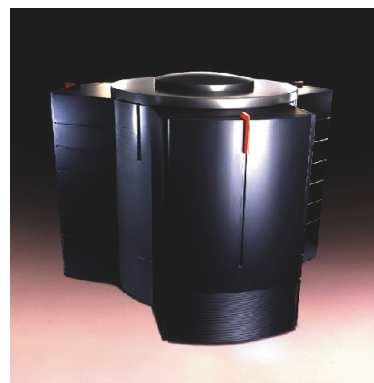
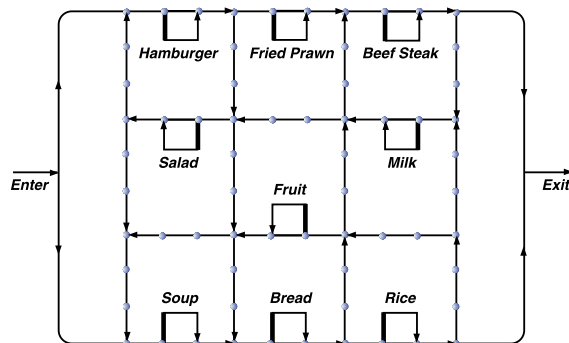
Capacity of each queue in each counter: 4 persons

The Contest was performed with the following hardware/software conditions : Cray C916/12256 (Clock 4 ns,12 CPUs, 2GB Memories)

CPUs: 9, Memory:128 MB, Running mode: dedicated to one job at a time

Compiler options: nothing. (1) the inner most loop can be vectorized. (2) No autotasking, but directives can be allowed to be added into source codes.

Results: 6540 unit times



We are waiting for your challenge next year 1997.

For more information, contact to: super-con96@cc.titech.ac.jp www: <http://www.cc.titech.ac.jp/>

