

SuperCon '99

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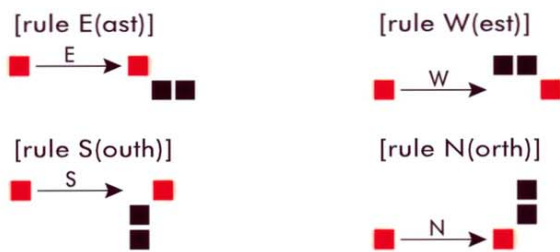
SUPER COMPUTER CONTEST '99 FOR HIGH SCHOOL STUDENTS

Entry Exercise:

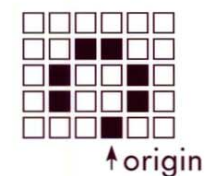
Write a program which calculates the Euler's constant(0.5772156...) to six digits of precision.

Contest Exercise: "Life Game"

The life game starts at the initial cell pattern which is made according to the following rules:



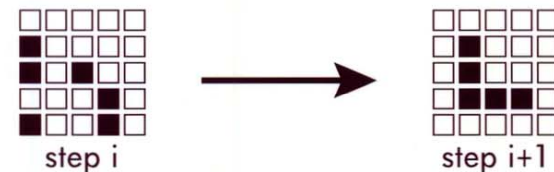
ex. Three-length(depth) rule sequence makes 64 patterns at most.
The initial pattern below is created by the rule sequence: N --> W --> S.



The rule of the life game is as follows:

current status of cell	the number of surrounding ■ cells	next status of cell
■ (alive)	two or three	■
	others	□
□ (dead)	three	■
	others	□

ex.



Problem:

Cells live and die in the cell world. Write a program which calculates how many cells still alive after given time will have passed. The size of the cell world and the rule depth of initial cell patterns are also given.

No.	space size	rule depth	final time	(answer)
1	77	7	77	12656
2	555	6	777	3016
3	67	8	90	51656
4	777	5	98765	788

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:

12.8 seconds!

for the total four problems and no mistakes.



Team "poser" Toho High School
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We are waiting for your challenge next year 2000.

For more information or comments, send an e-mail to: office@cc.titech.ac.jp



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