

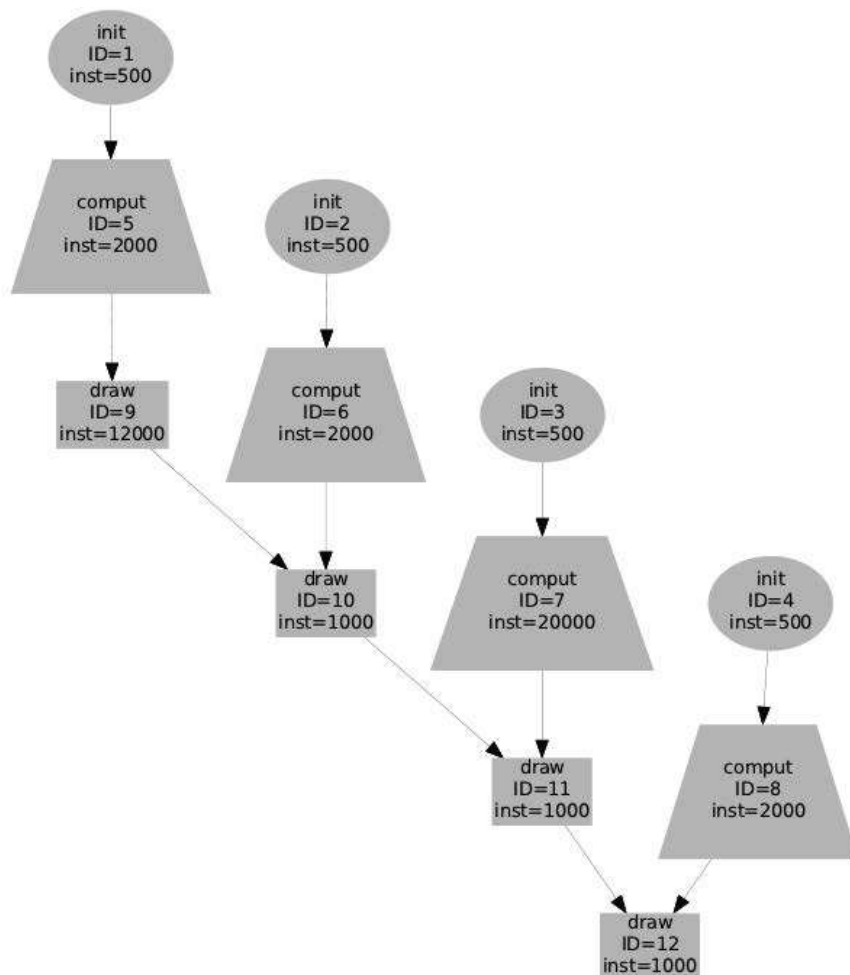
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Estat	Acabat
Completat el	dissabte, 25 de setembre 2021, 16:55
Temps emprat	51 segons
Qualificació	4,00 sobre 4,00 (100%)

Pregunta **1**

Correcte

Puntuació 1,00 sobre 1,00

Given the following task dependence graph (TDG). Each node is labeled with a name and also includes an identifier *ID* and cost *inst* in terms of the number of instructions.



The TDG can also be expressed textually with the following table:

name	ID	inst	successor ID	task
init	1	500	5	
init	2	500	6	
init	3	500	7	
init	4	500	8	
compute	5	2000	9	
compute	6	2000	10	
compute	7	20000	11	
compute	8	2000	12	
draw	9	12000	10	
draw	10	1000	11	
draw	11	1000	12	
draw	12	1000		

draw 9 12000 10
draw 10 1000 11
draw 11 1000 12
draw 12 1000 No successor

Observe that task *comput* with $ID=7$ takes 10 times more than the other *comput* tasks and task *draw* with $ID=9$ takes 12 times more than other *draw* tasks.

Assume that the tasks in the TDG are executed on 4 processors with the following task assignment: each processor executes a sequence *init-compute-draw* (for example the sequence {2, 6, 10}). Which is the speed-up that is obtained?

Trieu-ne una:

- ☒ 1.91
- ☐ 2.45
- ☐ 4

✓ Well done!

La teva resposta és correcta.

La resposta correcta és: 1.91

Pregunta **2**

Correcte

Puntuació 1,00 sobre 1,00

Assuming that we are able to better balance the work among processors, which means that each node 1-4 weights 500, each node 5-8 weights 6500, and each node 9-12 weights 3750. Which is the speed-up that would be achieved with 4 processors, assuming the same task assignment as before?

Trieu-ne una:

- ☐ 4
- ☒ 1.95
- ☐ 4.77

✓ Well done!

La teva resposta és correcta.

La resposta correcta és: 1.95

Pregunta **3**

Correcte

Puntuació 1,00 sobre 1,00

Assume a sequential application computing the sum of two vectors of size $N=1024$ elements. Which should be the problem size and task granularity when parallelized with $P=4$ processors and strong scaling:

Trieu-ne una:

- ☒ 1024 and 256, respectively.
- ☐ 1024 and 1024, respectively.
- ☐ 4096 and 1024, respectively.

✓ Well done! In *Strong Scaling* the problem size is kept fixed and distributed across all tasks.

La teva resposta és correcta.

La resposta correcta és: 1024 and 256, respectively.

Pregunta **4**

Correcte

Puntuació 1,00 sobre 1,00

Which should be the problem size and task granularity when parallelized with $P=4$ processors and weak scaling:

Trieu-ne una:

- ☐ 1024 and 256, respectively.
- ☐ 4096 and 256, respectively.
- ☒ 4096 and 1024, respectively.

✔ Well done! The total problem size is increased in order to maintain the task granularity.

La teva resposta és correcta.

La resposta correcta és: 4096 and 1024, respectively.

[◀ Video lesson 3 \(part 2\)](#)

Salta a...

[Video lesson 3 \(part 3\) ▶](#)