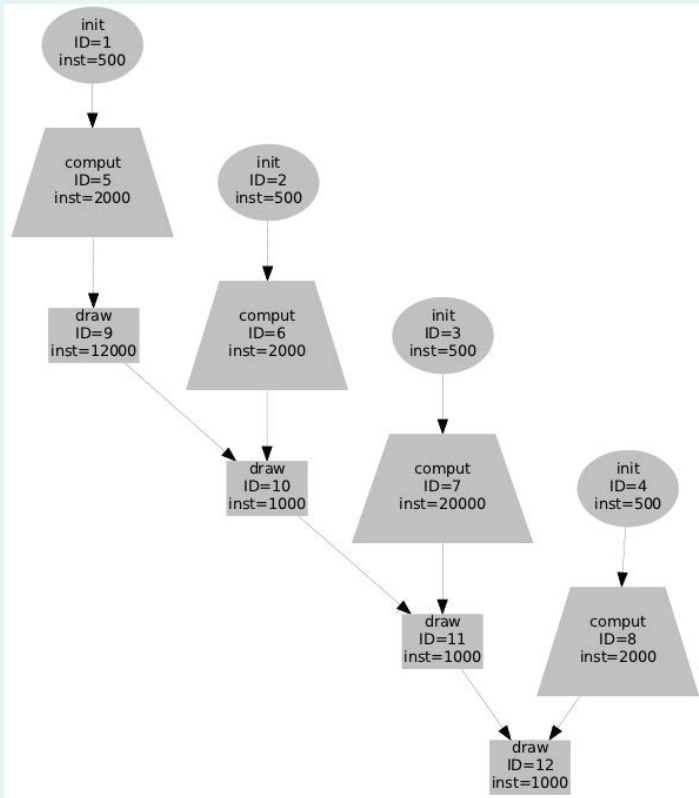


Question 1

Correct

Mark 1.00 out of 1.00

Given the following task graph where `inst` indicates the cost of a task in terms of number of instructions:



to be executed on 4 processors, each processor executing a task sequence `init-compute-draw` (for example, un processor would execute tasks with IDs {2, 6, 10}).

Which is the *speed-up* to be achieved with 4 processors?

(Note: in your answer, truncate your result to 2 decimals and use a point as the decimal mark. If, due to a change in some system configuration, the point does not work as decimal mark, use the comma.)

T_{inf} is the critical path

$$T1/T_{\text{inf}}=43000/22500=1.91$$

Answer: 1.91



Well done!

The correct answer is: 1.91

Try another question like this one

Question 2

Correct

Mark 0.33 out of 1.00

Let's assume 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?

(Note: truncate your result to display 2 decimals and use a point as the decimal mark)

Answer: 1.95



$$T1/T_{\text{inf}} = 43000 / (N1 + N5 + N9 + N10 + N11 + N12) = 43000 / (500 + 6500 + 3750 + 3750 + 3750 + 3750) = 1.95$$

Well done!

The correct answer is: 1.95

Try another question like this one


Question 3

Correct

Mark 1.00 out of 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*:

Select one:

- ☒ a. 1024 and 256, respectively.  Well done! In *Strong Scaling* the problem size is kept fixed and distributed across all tasks.
- ☐ b. 1024 and 1024, respectively.
- ☐ c. 4096 and 1024, respectively.

$$\text{Problem size/Number of processors} = \text{Granularity} \\ 1024/4 = 256$$

The correct answer is: 1024 and 256, respectively.

Try another question like this one


Question 4

Correct

Mark 1.00 out of 1.00

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

Select one:

- ☐ 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.

$$\text{Problem size} * \text{Number of processors} = \text{Granularity} \\ 1024 * 4 = 4096$$

The correct answer is: 4096 and 1024, respectively.

Try another question like this one