

Unit 6 - Week 4

Course outline
How does an NPTEL online course work?
Week 0 Assignment 0
Week 1
Week 2
Week 3
Week 4
<ul style="list-style-type: none"> Lecture 17 : Data sharing and synchronization Lecture 18 : Efficient OpenMP programming for matrix computing Lecture 19 : Introduction to MPI and Distributed Memory Parallel Programming Lecture 20 : Introduction to MPI and Distributed Memory Parallel Programming (continued) Lecture material of Week 4 Quiz : Week 4 Assignment 4 Week 4 Feedback Form
Week 5
Week 6
Week 7
Week 8
Download Videos
Detail Solution
Live Interactive Session
Text Transcripts

Week 4 Assignment 4

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-10-14, 23:59 IST.

- 1) False sharing will always happen if different locations in the same cache line is updated in by different threads 1 point
- a.True
b.False
- a.
 b.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
b.
- 2) Which one is not a synchronization construct/clause in openMP? 1 point
- a. barrier
b. flush
c. critical
d. nowait
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
d.
- 3) The difference between atomic and critical construct is: 1 point
- a. Atomic avoids race condition, critical cannot
b. Both works for race condition but critical also avoids false sharing
c. Atomic operation can only be done on a memory location (variable) update step, but critical can be on other operations
d. Atomic is parallelized but critical is sequential
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
c.
- 4) In which of this matrix operation using openMP, performance reduction due to contention among threads will be highest? 1 point
- a. Vector-vector dot product
b. Matrix-vector product
c. Matrix-matrix product
d. Cannot be said
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
a.
- 5) Consider two operations: dot product of two n-dimensional vectors and matrix-vector product of nxn matrix with n-dimensional vector. For openMP parallelization, which one will give better speed-up ? 1 point
- a. depends on n
b. Matrix-vector product
c. Dot product
d. same speed-up
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
b.
- 6) Collapse clause over nested parallel loops in openMP can reduce the overhead 1 point
- a.True
b.False
- a.
 b.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
a.
- 7) Which of these factors do not hinder good parallel performance for matrix-matrix multiplication? 1 point
- a. Huge contention
b. Large amount of computing
c. Serial algorithm itself may give poor performance due to row/column access of one of the matrix, which is cache unfriendly
d. Serial algorithm itself may give poor performance as large amount of data for each row/column of multiplier matrices are to be read for computing one product element
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
a.
b.
- 8) How can a MPI process identifies its own rank. 1 point
- a. Using function MPI_INIT
b. Using function MPI_COMM_RANK
c. Specified by the used
d. None of the above
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
b.
- 9) An MPI process has to send data with another specific process. How can it find the receiver's address? 1 point
- a. Adding a shift with its own rank
b. Communicator automatically takes care of it
c. MPI function call
d. It has to be specified in the program
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
d.
- 10) An MPI program runs in the number of processors specified by the execution command. Each of the processor executes all lines of the program unless specified by if/else statement 1 point
- a.True
b.False
- a.
 b.
- No, the answer is incorrect.
Score: 0
Accepted Answers:
a.