Test #1

截止时间 5月1日 23:59 **得分** 100 **问题** 40 **可用** 4月27日 14:00 至 5月1日 23:59 4 天 **时间限制** 60 分钟

说明

Canvas calls this a "Quiz", but it is really Test #1.

It consists of 40 multiple choice questions to be done in 60 minutes. It is Open Notes and Closed Friends.

Once you start, you must finish. Canvas will not let you pause and come back.

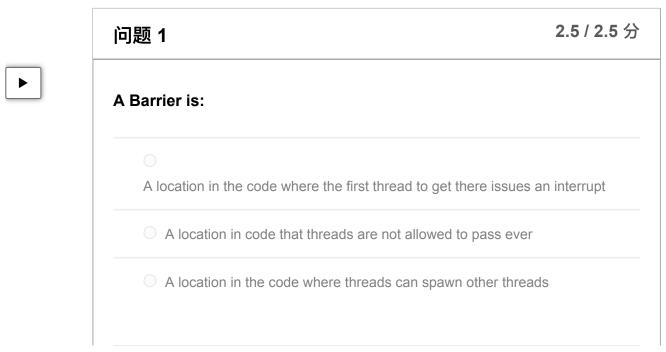
尝试历史记录

	尝试	时间	分数
最新	<u>尝试 1</u>	41 分钟	100,满分 100 分

① 正确答案将于 5月2日 0:01 提供。

此测验的分数: **100**,满分 100 分

提交时间 4月30日 17:26 此尝试进行了 41 分钟。





A location in the code that all threads must reach before any of them are allowed to pass

问题 2	2.5 / 2.5 分
A "race condition" is one where:	
O You get the same result regardless of which thread gets to a first	piece of code
You get a different result depending on which thread gets to code first	a piece of
It matters which thread gets to a barrier first	
It matters which stack holds a particular variable	



问题 3	2.5 / 2.5 分
The theoretical maximum speedup that you can matter how many cores you add, is:	ever achieve, no
1/Fs	
1/(Fp+Fs)	
○ 1/Fp	

问题 4	2.5 / 2.5 分
In terms of 32-bit floating-point numbers, the size typically:	e of a cache line is
64 floating-point numbers	
16 floating-point numbers	
8 floating-point numbers	
 32 floating-point numbers 	

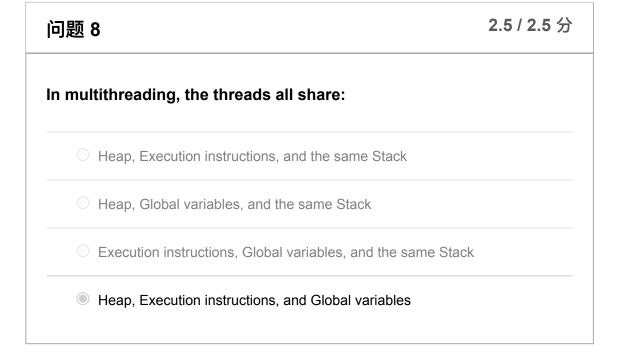
问题 5	2.5 / 2.5 分
One of the nice features of OpenMP is that it goes behavior across different vendors and hardways	
O True	
False	

问题 6 2.5 / 2.5 分

The cache that is closest to the Arithmetic Logic Unit (ALU) is named:

O L2		
○ L3		
○ L0		

问题 7	2.5 / 2.5 分
Declaring a variable inside an OpenMP for-lo	oop automatically makes
Global	
Static	
Shared	
Private	



问题 9 2.5 / 2.5 分

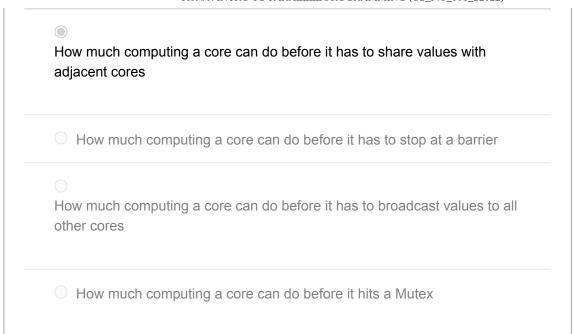
The difference between static and dynamic scheduling of a for-loop is: Opynamic scheduling allows you to change how the for-loop passes are divided up while they are running Opynamic scheduling divides all the for-loop passes among the threads at first Opynamic scheduling changes the chunksize while the for-loop is running Opynamic scheduling divides only some of the for-loop passes among the threads at first

问题 10 2.5 / 2.		
Using "default(none)" in an OpenMP #pragma is:		
A way to possibly increase performance		
A deprecated feature of an older version of OpenMP		
Required		
A good idea, but not required		

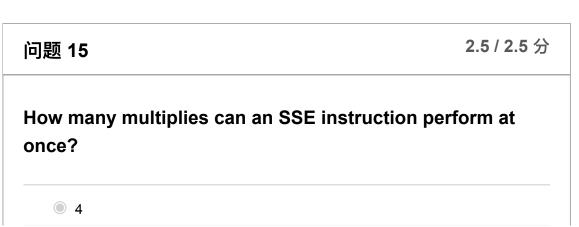
问题 11	2.5 / 2.5 分
A way to prevent harm from race conditions is:	
Shared variables	
O Dynamic scheduling	
Mutual Exclusion Locks	
Private variables	

问题 12	2.5 / 2.5 分
Moore's Law (as Gordon Moore <i>actually</i> phrase	ed it) says:
Parallel fraction doubles every 1.5 years	
The number of cores doubles every 1.5 years	
Transistor density doubles every 1.5 years	
Clock speed doubles every 1.5 years	

问题 13 2.5 / 2.5 分
The Compute-to-Communicate ratio tells us:



问题 14	2.5 / 2.5 分
A good way to make a piece of code not Threa is to:	d Safe (such as strtok)
Use a chunksize of 1	
Use a mutual exclusion lock	
Keep internal state	
Use a private variable	



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○ 2	
O 16	
8	

问题 16 Our class's "Inverse Amdahl's Law" that you used in Projects #0, #1, and #2 computes: n, given Sn and Fp Sn, given Fp and n Thread Efficiency, given Sn and n Fp, given Sn and n

The difference between using OpenMP Tasks vs. using OpenMP Sections is that: Tasks are dynamically allocated, sections are static Tasks are statically allocated, sections are dynamic Nothing -- they are different words for the same thing Sections are deprecated

问题 18	2.5 / 2.5 分
The line "#pragma omp single" is used to:	
Force this block of code to be divided up into individual Op	penMP sections
Force this block of code to be executed by one thread	only
Force this block of code to undergo a single reduction	
Force this block of code to be executed in single-file order	by each thread

问题 19	2.5 / 2.5 分
The purpose of the Watcher Thread in our Functions example program is to:	ional Decomposition
Time the simulation	
O Draw a picture of what is going on in the simulation	
Print results and update environmental variables	
Figure out what the animal or plant threads need to	do next

问题 20 2.5 / 2.5 分

You can system.	nnot use multithreading without having a multicore	
O Tru	ue	
Fa	ilse	

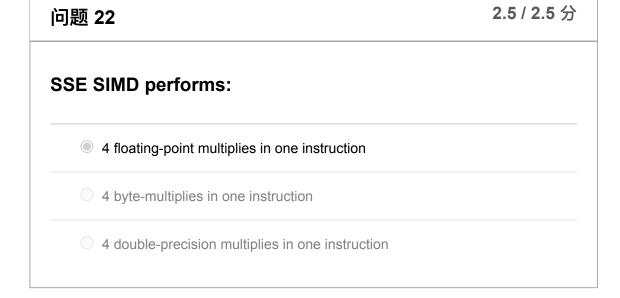
问题 21

When adding up the elements of a 2D array in C or C++, it is faster to add the elements:

It makes no speed difference either way

Horizontally (i.e., across the rows) first

Vetically (i.e., down the columns) first



问题 23 A Deadlock condition is when: ● Two threads are each waiting for the other one to do something When it is a race to see which of two threads get to a piece of code first The CPU chip cannot find any more instructions to execute while waiting for a memory fetch When you keep internal state

问题 24	2.5 / 2.5 分
A thread's state consists of:	
Stack, Program counter, Registers	
Stack pointer, Program counter, Stack	
Stack pointer, Stack, Registers	
Stack pointer, Program counter, Registers	



Amdahl's Law than or equal to	only applies when you have a number of cores o 8	that is less
More cores ofto	en results in memory contention and decrease	s performance
	en results in more data, which results in a large	

问题 26	2.5 / 2.5 分
Speedup Efficiency is defined as:	
Sn/n	
○ n	
○ Fp/n	
○ Fp	

问题 27	2.5 / 2.5 分
A "Mutex" is:	

A "mutual text" message
Another term for a "mutual exclusion lock"
A "multiple texture" for graphics processing
A sound you make when you sneeze

问题 28 2.5 / 2.5 分

When using OpenMP Tasks to apply parallelism to traversing a binary tree, the uniformity of the distribution of tasks among the threads:

- Depends on the type of CPU
- Depends on the amount of physical memory you have
- Depends on the compiler
- Openeds on how well you use the OpenMP task clauses

▶ 问题 29

2.5 / 2.5 分

A Private variable differs from a Shared variable in that:

- Each thread has its own copy of it
- Writing to it automatically triggers a power-of-two reduction operation

When each thread writes to it, the value goes to the same memory address

Writing to it automatically triggers a cache line reload

问题 30

The advantage of using the OpenMP reduction clause is

It is less likely to result in a compiler error

No advantage, it is just cleaner code

Actually a disadvantage -- it can produce wrong, non-deterministic answers

It greatly speeds, and makes thread-safe, reduction operations

问题 31

Why is there a photo of a carton of eggs in the Cache notes?

Because caches are easily broken

Because cache lines always have a dozen bytes in them

No logical reason -- it looks cool



Bringing home a dozen eggs when you only need 3 today is like reading a cache line when you only need one memory value

问题 32 In Project #1 (Monte Carlo) Joe Graphics coded this: float sthd = sths[n]; float svx = sv * cos(sthd); float svy = sv * sin(sthd); and got the wrong probability. Why? Forgot to turn degrees to radians. Accidentally switched cos and sin Called the wrong trig functions.

问题 33 2.5 / 2.5 分



The word "deterministic" means:

- The program outputs change every time you run the program
- The program outputs change whenever you change the number of threads
- The same inputs will always produce the same outputs

It describes a quantity that you are attempting to determine

问题 34 2.5 / 2.5 分

AMD recently achieved a remarkably-high CPU clock speed by:

- Running the CPU in the Penguin Encounter at Sea World
- Running the CPU outside at the north pole
- Cooling the chip with liquid nitrogen
- Ocoling the chip with four fans

问题 35 2.5 / 2.5 分

False Sharing happens because

- Two cores have loaded cache lines for adjacent memory locations
- A core writes to the same cache line that another core is reading from
- Two cores are reading from the same cache line
- Two cores are not using the same cache line, but should be

问题 36 2.5 / 2.5 分

https://canvas.oregonstate.edu/courses/1866230/quizzes/2780795

SPMD stands for:	
Significant Parallelism, Multiple Data	
Single Program, Much Data	
Significant Parallelism, Much Data	
Single Program, Multiple Data	

If you have a working multicore program, can you compute the F_{parallel}?

No, it's too complicated.

Yes, measure a speedup and use the inverse Amdahl's Law

Yes, but it will require more knowledge than we are covering here

No, it's too unpredictable

>

问题 38 2.5 / 2.5 分

In Project #2 (Numeric Integration), why do you need to double the volume you compute (the Z axis is up-down, the X axis is left-right)?

puting the volume of the right half
ause superquadrics have both a left and right half and we are only puting the volume of the left half
ause superquadrics have both a top and bottom half and we are only puting the volume of the top half
ause superquadrics have both a top and bottom half and we are only puting the volume of the bottom half

问题 39	2.5 / 2.5 分
MESI stands for:	
Modified-Exclusive-Shared-Instructions	
Modified-Exclusive-Shared-Invalid	
Nothing it's someone's name	
Multicore-Exclusive-Shared-Invalid	
Modified-Exterior-Shared-Invalid	
Modified-Exclusive-Single-Invalid	

问题 40	2.5 / 2.5 分
The two types of coherence that caches want to s deliver maximum performance are:	see in order to
Spatial and Thermal	
Systemic and Temporal	
Systemic and Thermal	
Spatial and Temporal	

测验分数: **100**, 满分 100 分

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