p4AQuestions Results for SHIHAN CHENG

Score for this attempt: **20** out of 20
Submitted Mar 31 at 8:53pm
This attempt took 30 minutes.

Question 1

2 / 2 pts

cache1D:

What is the total hit ratio for the D-cache with a block size of 4 bytes? Provide your answer as a percentage, e.g. 50.5%, but just input a number without the % character.

Correct!

82.48

orrect Answers

Between 80.0 and 90.0

Question 2

2 / 2 pts

cache1D:

What is the total hit ratio for the D-cache with a block size of 32 bytes? Provide your answer as a percentage, e.g. 50.5%, but just input a number without the % character.

Correct!

96.44

orrect Answers

Between 90.0 and 98.0

Question 3

2 / 2 pts

cache1D:

What is the total hit ratio for the D-cache with a block size of 64 bytes? Provide your answer as a percentage, e.g. 50.5%, but just input a number without the % character.

Correct!

97.2

orrect Answers

Between 95.0 and 100.0

Question 4

2 / 2 pts

cache1D:

Answer this question without running pin again. Assume that the 100,000 element integer array that you allocated starts at address 0x50000000 in memory, the size of an integer is 4 bytes and the D-cache is initially empty. As you read the integers in the array one-by-one, starting at index 0, how many D-cache misses will you see for reading the first 40 integers when the cache block size is:

a) 4 bytes: 40

b) 32 bytes: 5

c) 64 bytes: 3

Answer each part by entering an integer between 0 and 40.

Answer 1:

Correct!

40

Answer 2:

Correct!

5

Answer 3:

Correct!

3

Question 5

3 / 3 pts

cache1D:

Answer the following for this program:

Which block size is the best? [Select]

Why? [Select]

Answer 1:

Correct!

64

Answer 2:

Correct!

Spatial locality

Question 6

2 / 2 pts

cache2Drows:

What is the total hit ratio for the D-cache with a block size of 64 bytes? Provide your answer as a percentage, e.g. 50.5%, but just input a number without the % character.

Correct!

98.41

orrect Answers

Between 95.0 and 100.0

Question 7

2 / 2 pts

cache2Dcols:

What is the total hit ratio for the D-cache with a block size of 64 bytes? Provide your answer as a percentage, e.g. 50.5%, but just input a number without the % character.

Correct!

87.12

orrect Answers

Between 80.0 and 90.0

Question 8

2 / 2 pts

Comparing cache2Drows with cache2Dcols:

Answer this question without running pin again. Assume that the 2-D integer array you allocated starts at address 0x40000000 in memory, the size of an integer is 4 bytes, D-cache block size is 64 bytes and the D-cache is initially empty. As you read the integers in the 2-D array one-by-one, starting with element array[0,0], how many D-cache misses will you see for reading the first 10 integers in case of:

a) cache2Drows: 1

b) cache2Dcols: 10

Answer each part by entering an integer between 0 and 10.

Answer 1:

Correct!

1

Answer 2:

Correct!

10

Question 9

3 / 3 pts

Comparing cache2Drows with cache2Dcols:

Compare the performance (hit ratio) of the D-cache for the 2 programs.

Which one is better? cache2Drows

Why? Spatial locality

Answer 1:

Correct!

cache2Drows

Answer 2:

Correct!

Spatial locality

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