CS 553 Cloud Computing
Programming Assignment 1
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<u>MANUAL</u>

CPU
Benchmarking:

In this we only need to run the benchmark.c file. The result is semi-automated, i.e. each time user needs to give input for all the threads. The output gives the average of all the threads. The output gives the time for GFLOPS and IOPS for 1, 2 and 4 Threads. The sample output is given below:

Navigate to the c file location and run the c file.
Compile: gcc -pthread CPUBenchmark.c –o CPUoutput.out
Run: ./CPUoutput.out

Output:

Enter the no of threads:(1/2/4) (Exit-0) :

1

Program to find FLOPS for 1 threads
GFLOPS : 0.174785
GIOPS: 0.217382

Enter the no of threads:(1/2/4) (Exit-0) :

2

Program to find FLOPS for 2 threads
GFLOPS : 0.149712
GIOPS: 0.205318

Enter the no of threads:(1/2/4) (Exit-0) :

4

Program to find FLOPS for 4 threads
GFLOPS : 0.221784
GIOPS: 0.459432

Enter the no of threads:(1/2/4) (Exit-0) :

0

Theoretical Performance

Navigate to the java file location and run the java file in command file.

Command line: javac Theory_performance.java

java Theory_performance

Theoretical Performance Of Your CPU In GFLOPS: 76.8 GFLOPS

Disk Benchmarking:

For random and sequential access the read and write speeds for different block sizes are

calculated. The program outputs speed and latency. The sample output of the program is:

Navigate to the c file location and run the c file.
Compile: gcc –pthread DiskBenchmark.c –o Diskoutput.out
Run: ./Diskoutput.out

Output:

Program to find Disk Benchmark
………………………………………..
…………………………………………...

Enter the Block Size:

1.BYTE

2.KILOBYTE

3.MEGABYTE

4.EXIT :

1

Enter the number of threads(1/2) :

1

BYTE read for thread 1

SEQUENTIAL Write

Latency: 0.231252 ms

Throughput: 0.041240 MB/s

RANDOM Write

Latency: 0.288446 ms

Throughput: 0.033068 MB/s

SEQUENTIAL Read

Latency: 0.236698 ms

Throughput: 0.040291 MB/s

RANDOM Read

Latency: 0.238176 ms

Throughput: 0.040041 MB/s

Enter the Block Size:

1.BYTE

2.KILOBYTE

3.MEGABYTE

4.EXIT :

1

Enter the number of threads(1/2) :

2

BYTE read for thread 2

SEQUENTIAL Write

Latency: 0.290627 ms

Throughput: 0.032814 MB/s

RANDOM Write

Latency: 0.334745 ms

Throughput: 0.028490 MB/s

SEQUENTIAL Read
Latency: 0.267901 ms
Throughput: 0.035598 MB/s

RANDOM Read
Latency: 0.2636265 ms
Throughput: 0.036175 MB/s

Memory Benchmarking:

This benchmark code is written in C. The program returns the output for 1 thread and 2

threads. The program also results throughput and latency. The sample output of this program

is:

Navigate to the c file location and run the c file.
Compile: gcc -pthread MemoryBenchmark.c –o Memoryoutput.out
Run: ./Memoryoutput.out

Output:

………………Program to find Memory Benchmark………………..
Enter the Block Size:

1.BYTE

2.KILOBYTE

3.MEGABYTE

4.EXIT :

1

Enter the number of threads(1/2) :
1

Byte read+write for 1 thread

..Sequential Read+Write..

Latency: 0.013263 ms

Throughput: 71.904872 MB/s

..Random Read+Write..

Latency: 0.039678 ms

Throughput: 24.035342 MB/s

Enter the Block Size:

1.BYTE

2.KILOBYTE

3.MEGABYTE

4.EXIT :

1

Enter the number of threads(1/2) :

2

Byte read+write for 2 thread

..Sequential Read+Write..

Latency: 0.0116065 ms

Throughput: 82.167261 MB/s

..Random Read+Write..

Latency: 0.043309 ms

Throughput: 22.020234 MB/s