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Cloud Computing

Programming Assignment 1

Manual

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Setup

- Unzip the folder submitted and extract all the source code files.
- Assuming you have a m1.medium instance running on Chameleon.
- Copy the files to Chameleon instance using scp command from your terminal

e.g. scp -i cloud.key Desktop /memory_benchmark/memory.c cc@129.114.111.241:~/.
Replace the IP address with your floating IP.

- Now, it is ready to run the program

CPU Benchmarking

- A script has been written to run the CPU benchmark with varying level of concurrency.
- Run the script named runCPU.sh by using the following command:
  - ./runCPU.sh
- Now, the output log files have been generated in your current directory by following names:
  - cpu-benchmarking-gflops.log
  - cpu-benchmarking-gilops.log
- To see the output, run following commands:
  - cat cpu-benchmarking-gflops.log
  - cat cpu-benchmarking-gilops.log

GPU Benchmarking

- For Compilation run the following command:
  nvcc gpu-cuda-benchmark.cu -o gpu-cuda-benchmark
- To Run the program, use the following command:
  ./gpu-cuda-benchmark <Mode>

  Mode 1 -> to calculate GIOPS
  Mode 2 -> to calculate GFLOPS
- Now, the output log files have been generated in your current directory by following names:
  - gpu-benchmarking.log
- To see the output, run following commands:
  - cat gpu-benchmarking.log

Memory Benchmarking

- A script has been written to run the memory benchmark with varying level of concurrency of threads and block sizes.
- Run the script named run_memory.sh by using the following command:
    - ./run_memory.sh
- Now, the output log files have been generated in your current directory by following names:
    - memory-benchmarking.log
- To see the output, run following commands:
    - cat memory-benchmarking.log

Disk Benchmarking

- A script has been written to run the disk benchmark with varying level of concurrency of threads and block sizes.
- Run the script named run_disk.sh by using the following command:
    - ./run_disk.sh
- Now, the output log files have been generated in your current directory by following names:
    - disk-benchmarking.log
- To see the output, run following commands:
    - cat disk-benchmarking.log

Network Benchmarking

A make file has been made for easy functioning.

TCP

- To Compile:
    - make
- To Clean:
    - make clean
- To Run Sever:
    - ./server-tcp.o <number of threads>
    - e.g ./server-tcp.o 2
- To Run Client:
    - ./client-tcp.o <number of threads> <ip address>
    - e.g ./client-tcp.o 2 127.0.0.1
- Output file name: network-benchmarking-tcp.log

Note:

1: Number of theads on both client and server should be same

2: To run the program for 2 nodes just give the server ip address while running the client

UDP

- To Compile:
  - make
- To Clean:
  - make clean
- To Run Sever:
  - ./server-udp.o <number of threads>
  - e.g ./server-udp.o 2
- To Run Client:
  - ./client-udp.o <number of threads> <ip address>
  - e.g ./client-udp.o 2 127.0.0.1
- Output file name: network-benchmarking-udp.log

Note:
1: Number of theads on both client and server should be same
2: To run the program for 2 nodes just give the server ip address while running the client