

Week#6 RocksDB Introduction

Hyuksoo Yeo

2016312761

1. INTRODUCTION

Run db_bench to benchmark RocksDB on my system. Then present the experimental results.

2. METHODS

For this experiment, RocksDB installation is needed. Then build many object files for running db_bench. Run the command and measure the performance.

3. Performance Evaluation

3.1 Experimental Setup

System setup:

Type	Specification
OS	Ubuntu 20.04.3 LTS
CPU	Intel® Core™ i3-9100F CPU @ 3.60GHz
Memory	16GB
Kernel	5.11.0-27-generic
Data Device	Western Digital WD Blue 500GB
Log Device	Western Digital WD Blue 500GB

Benchmark setup:

Type	Configuration
DB size	1GB (10 warehouse)
Buffer Pool Size	300MB (30% of DB size)
Benchmark Tool	tpcc-mysql
Runtime	1200s
Connections	8

3.2 Experimental Results

RocksDB: version 6.25

Date: Tue Oct 12 20:59:12 2021

CPU: 1 * Intel(R) Core(TM) i3-9100F CPU @ 3.60GHz

CPUCache: 6144 KB

2021/10/12-20:59:22 ... thread 0: (2568000,2568000) ops and (256763.4,256763.4) ops/second in (10.001424,10.001424) seconds

2021/10/12-20:59:32 ... thread 0: (1911000,4479000) ops and (190983.9,223866.0) ops/second in (10.006081,20.007505) seconds

2021/10/12-20:59:42 ... thread 0: (202000,4681000) ops and (20047.7,155600.5) ops/second in (10.075951,30.083456) seconds

2021/10/12-20:59:53 ... thread 0: (21000,4702000) ops and (2037.2,116410.2) ops/second in (10.308191,40.391647) seconds

2021/10/12-21:00:03 ... thread 0: (21000,4723000) ops and (2007.8,92879.3) ops/second in (10.459269,50.850916) seconds

2021/10/12-21:00:13 ... thread 0: (18000,4741000) ops and (1775.5,77735.3) ops/second in (10.138122,60.989038) seconds

2021/10/12-21:00:24 ... thread 0: (18000,4759000) ops and (1723.9,66624.2) ops/second in (10.441447,71.430485) seconds

...

2021/10/12-21:08:30 ... thread 0: (17000,5554000) ops and (1636.4,9967.7) ops/second in (10.388895,557.200000) seconds

2021/10/12-21:08:40 ... thread 0: (17000,5571000) ops and (1635.3,9815.1) ops/second in (10.395599,567.595599) seconds

2021/10/12-21:08:50 ... thread 0: (16000,5587000) ops and (1547.0,9667.1) ops/second in (10.342820,577.938419) seconds

2021/10/12-21:09:01 ... thread 0: (17000,5604000) ops and (1596.5,9521.1) ops/second in (10.648471,588.586890) seconds

2021/10/12-21:09:11 ... thread 0: (16000,5620000) ops and (1569.2,9385.7) ops/second in (10.196053,598.782943) seconds

Initializing RocksDB Options from the specified file

Initializing RocksDB Options from command-line flags

Keys: 16 bytes each (+ 0 bytes user-defined timestamp)

Values: 100 bytes each (50 bytes after compression)

Entries: 1000000

Prefix: 0 bytes

Keys per prefix: 0

RawSize: 110.6 MB (estimated)

FileSize: 62.9 MB (estimated)

Write rate: 0 bytes/second

Read rate: 0 ops/second

Compression: Snappy

Compression sampling rate: 0

Memtablerep: SkipListFactory

Perf Level: 1

WARNING: Assertions are enabled; benchmarks unnecessarily slow

DB path: [/home/yhs/vldb/rocksdb-data]

**readrandomwriterandom : 106.817 micros/op 9361 ops/sec; (reads:5060700 writes:562299
total:1000000 found:1187979)**

My computer spent 106.817 ms per one operation. And processed 9361 operations per second.

4. Conclusion

After this experiment, I knew RocksDB performance of my computer. Performance was not quite good because benchmark is run by single core CPU.

5. REFERENCES

[1] <https://github.com/meeeejin/SWE3033-F2021/tree/main/week-6>