

RocksDB Festival

Supported by IITP, StarLab.

July 19, 2021

박경미, 황예진

kmi0817@naver.com, hyj3463@naver.com

BGR

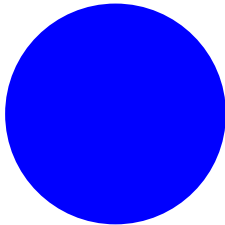
Contents

- BGR 팀 소개
 - ✓ Content
- RocksDB
 - ✓ db_bench 설치
 - ✓ 실험 결과
- 선택한 주제
- 기대 결과

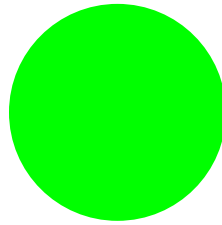
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■ Introduce BGR team

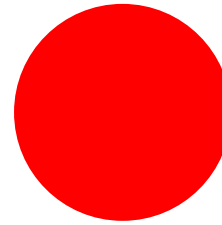
- ✓ 하계 방학 RocksDB 분석 스터디 참여
- ✓ Team Member
 - 박경미 / kmi0817@naver.com
 - 황예진 / hyj3463@naver.com



Big data



Guru



RocksDB

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■ RocksDB db_bench 설치

- ✓ https://github.com/DKU-StarLab/RocksDB_Explorer을 참고하여 RocksDB db_bench 설치 완료.

```
yejin@yejin-VirtualBox:~/RocksDB_Explorer$ ls
AUTHORS                                appveyor.yml                        make_config.mk
CMakeLists.txt                        buckifier                           memory
CODE_OF_CONDUCT.md                   build_tools                         mentable
CONTRIBUTING.md                     cache                               monitoring
COPYING                              cmake                               options
DEFAULT_OPTIONS_HISTORY.md           coverage                           parsing_csv
DUMP_FORMAT.md                       db                                  plugin
HISTORY.md                           db_bench                           port
INSTALL.md                           db_stress_tool                     python_parser
LANGUAGE-BINDINGS.md                 defs.bzl                           result_txt
LICENSE.Apache                       docs                                src.mk
LICENSE.leveldb                      env                                 table
Makefile                             examples                           test_util
PLUGINS.md                           file                                third-party
README.md                             fuzz                                thirdparty.inc
ROCKSDB_LITE.md                      hdfs                                tools
RocksDB_explorer_sh                  include                             trace_replay
TARGETS                              issue_template.md                  util
USERS.md                             java                               utilities
Vagrantfile                          librocksdb_debug.a
WINDOWS_PORT.md                      logging
```

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■ db_bench 테스트 결과

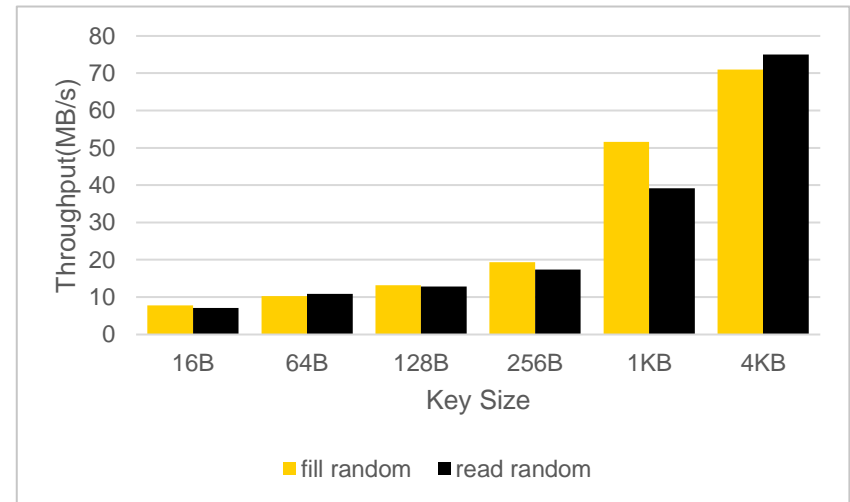
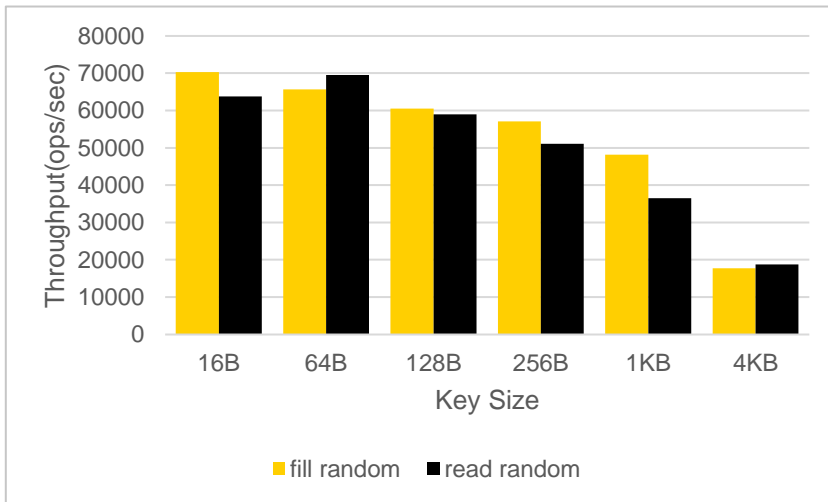
```
Initializing RocksDB Options from the specified file
Initializing RocksDB Options from command-line flags
RocksDB:    version 6.21
Date:       Sun Jul 18 15:20:23 2021
CPU:        1 * Intel(R) Core(TM) i5-7500 CPU @ 3.40GHz
CPUCache:   6144 KB
Keys:       16 bytes each (+ 0 bytes user-defined timestamp)
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: skip_list
Perf Level: 1
WARNING: Assertions are enabled; benchmarks unnecessarily slow
-----
Initializing RocksDB Options from the specified file
Initializing RocksDB Options from command-line flags
DB path: [/tmp/rocksdbtest-1000/dbbench]
fillseq    :      8.735 micros/op 114478 ops/sec;   12.7 MB/s
Please disable_auto_compactions in FillDeterministic benchmark
```

<./db_bench>

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■ db_bench 테스트 결과

- ✓ Key Size 변경 (16B/64B/128B/256B/1KB/4KB)
- ✓ fill random, read random

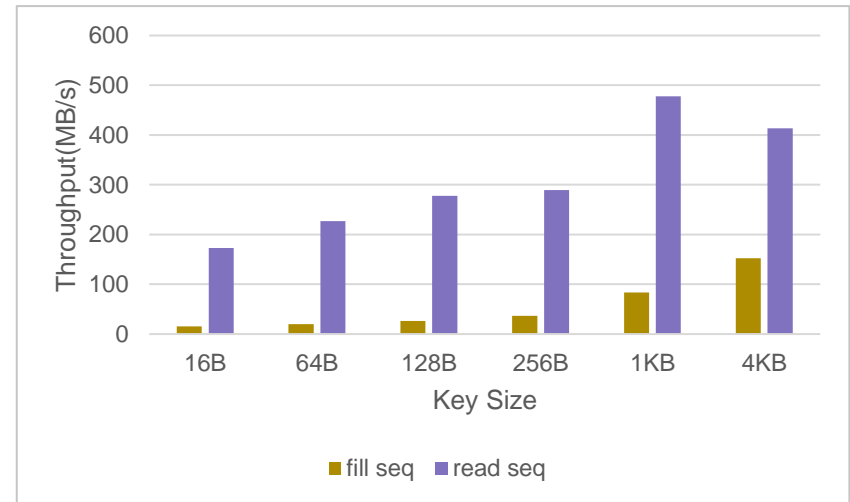
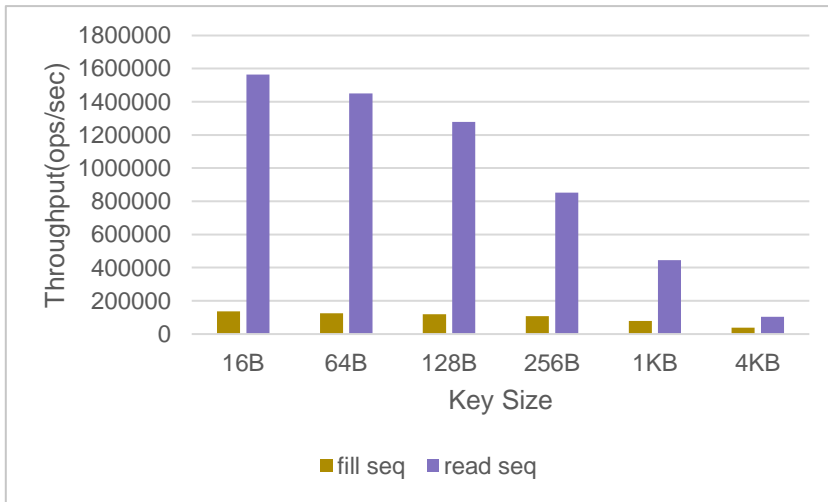


<./db_bench + --key_size=N>

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■ db_bench 테스트 결과

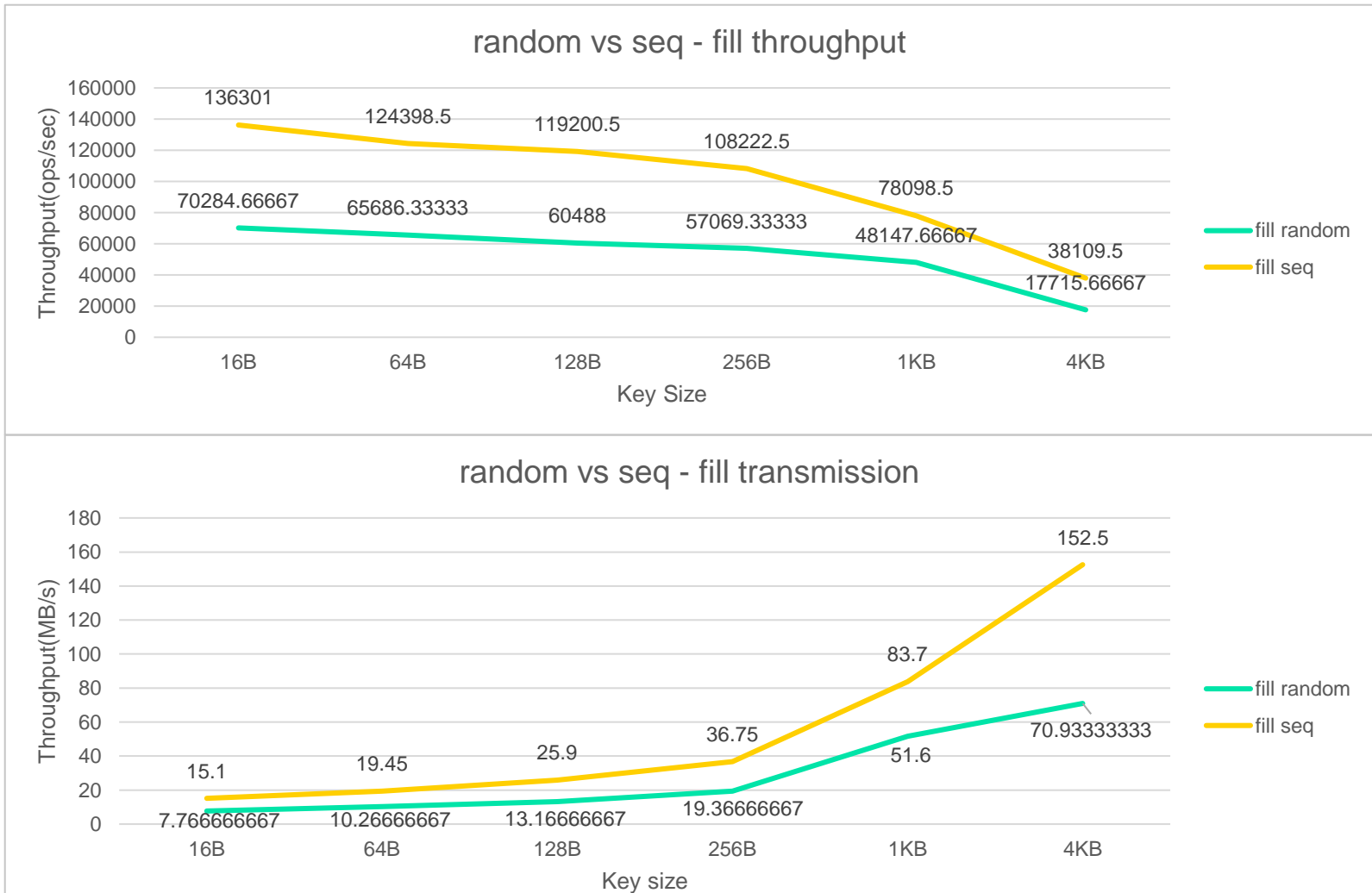
- ✓ Key Size 변경 (16B/64B/128B/256B/1KB/4KB)
- ✓ fill sequential, read sequential



<./db_bench + --key_size=N>

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■ db_bench 테스트 결과



■ Topic: Interface Related

- ✓ 내부 구조와 함께 인터페이스 측면에서 RocksDB를 분석하고 RedisDB와 성능 및 차이점을 비교하는 것이 목적



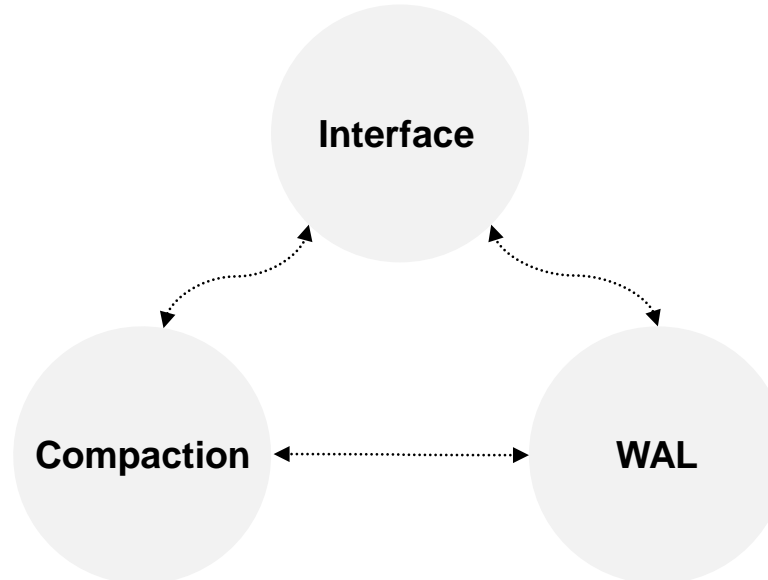
RocksDB



RedisDB

■ 기대 결과

- ✓ 다양한 DB 중에서도 **RocksDB**만의 뛰어난 성능을 확인하여 표나 그래프 등의 결과로 나타낸다.
- ✓ 추가적으로 단순한 성능 비교를 넘어 **RocksDB**의 내부 구조가 어떻게 동작하는지도 분석해본다.



Discussion

