Conclusion:

Environment: I used same computer to run the server, used the same thread number 4.
I also used same dataset for the test.

For randomly distributed data, the result for running only disk store and running cache-disk store is as follows:

on-disk store only (disk store):

Max so far is 18.537ms
Min so far is 0.045ms
Medium so far is 4.179ms
Mean so far is 4.07863ms
Number of insert operations: 1010
Number of delete operations: 0
Number of lookup operations: 8990

Have a cache in front of on-disk store (cache-disk store):

Max so far is 18.676ms
Min so far is 0.031ms
Medium so far is 3.3495ms
Mean so far is 3.44723ms
Number of insert operations on cache: 1010
Number of delete operations on cache: 0
Number of lookup operations on cache: 8990
Number of insert operations on disk: 1010
Number of delete operations on disk: 0
Number of lookup operations on disk: 8990

for randomly generated data, we can conclude that all the lookup operations of cache-disk store go to check disk storage at last, which means none of the look up operations found any key existing in cache storage. The min and max are very close for cache-disk store and disk store.

on-disk store only:

Max so far is 18.503ms
Min so far is 0.066ms
Medium so far is 4.001ms
Mean so far is 4.0244ms
Number of insert operations: 1024
Number of delete operations: 193
Number of lookup operations: 7304

Have a cache in front of on-disk store:

Max so far is 25.677ms
Min so far is 0.05ms
Medium so far is 4.07ms
Mean so far is 3.89736ms
Number of insert operations on cache: 1024
Number of delete operations on cache: 193
Number of lookup operations on cache: 8976
Number of insert operations on disk: 1024
Number of delete operations on disk: 193
Number of lookup operations on disk: 7304

For zipfian distribution, some of lookup operations of cache-disk store found keys exist in cache storage instead of on-disk. Cache-disk store does have slight advantage on mean request time over disk store, but has disadvantage on max request time. The long max request time might be caused by time spent on checking both cache and disk storages.