

ScaledKV Test

总的来说，NVM的性能处于DRAM和SSD之间，它的最大读带宽是39.4GB/s，读性能随线程数增加；最大写带宽为13.9 GB/s, 在4线程时获得峰值带宽。在UCSB公布的OptaneDC PMM测试数据中，NVM的随机写时延为305ns，比DRAM慢3.8倍；顺序写时延为169 ns，约为随机写时延的一半，这说明PMM内部有缓存机制。另外，256Byte是Optane DC的内部块大小，表示最小的有效访问粒度。小于256Byte的写操作将造成写放大。大于256Byte，各个大小的读写操作都趋于稳定。顺序写带宽是随机写的4倍，因此合并后的顺序访问不会造成因为256byte写单元造成的写放大。

ScaledKV Test

key_size : 8 value_size : 1024 key存储空间 : 30G value存储空间 : 80G

10G

30G

```
Info: Expand from level 0 to 1. Expand level cost 1.501009 s.
WriteRandom :      2.763 micros/op;  356.2 MB/s
ReadSeq      :      1.574 micros/op;  625.2 MB/s
ReadRandom   :      1.608 micros/op;  612.0 MB/s
GetRange     :      1.522 micros/op;  646.7 MB/s
[root@clx03 mxh 2]#
```

```
Info: Expand from level 0 to 1. Expand level cost 1.009992 s.
WriteRandom :      3.067 micros/op;  320.9 MB/s
ReadSeq      :      1.600 micros/op;  615.3 MB/s
ReadRandom   :      1.565 micros/op;  628.7 MB/s
GetRange     :      1.524 micros/op;  645.9 MB/s
[root@clx03 mxh 2]#
```

50G

服务器崩溃，没有

write_seq:227 M/s

50

177

70G

学长的测试数据

4_0000_0000 kv k : 8 bytes value : 256 bytes

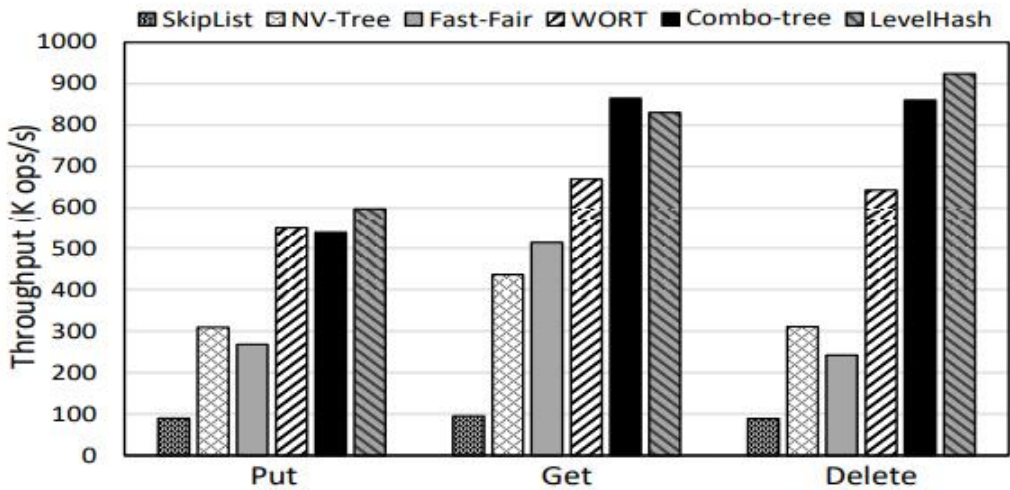


Figure 9: Put, Get, and Delete throughput.

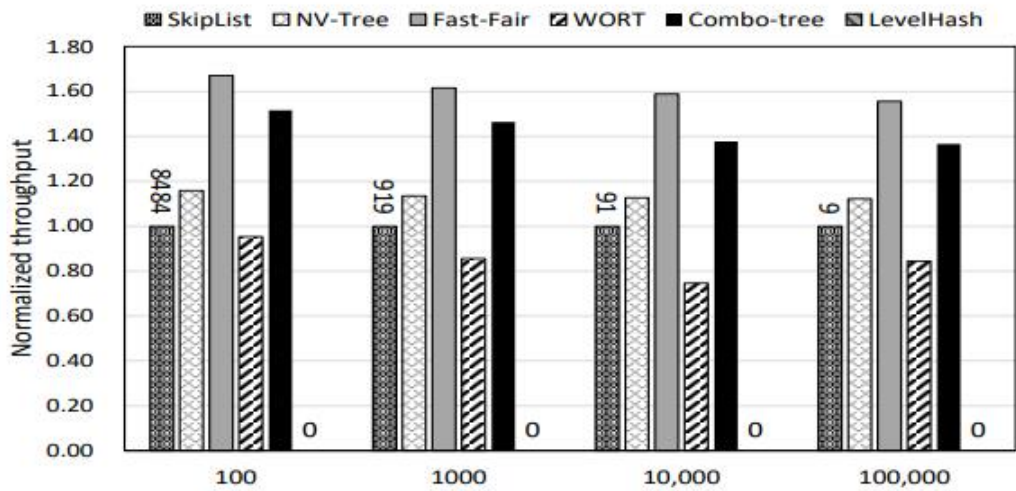


Figure 10: Scan throughput at four different levels of granu-

MemTable

内存大小: 1G 插入数据量: 100_0000 kv 插入数据大小: 980M

```
g++ memtable.cc skiplist.cc varint32.cc histogram.cc test.cpp -o test -std=c++11 -lpthread
./test 1024 1000000
db_bench: values_size:1024 op_num:1000000 FLAGS_num:1000000
Keys:      8 bytes each
Values:    1024 bytes each
Entries:   1000000
RawSize:   984.2 MB (estimated)
No error

-----
WriteSeq   :      5.589 micros/op; 176.1 MB/s
DeleteAll  :      7.717 micros/op; 127.5 MB/s
WriteRandom :      8.448 micros/op; 116.5 MB/s
ReadSeq    :      3.136 micros/op; 313.9 MB/s
ReadRandom :      5.847 micros/op; 168.3 MB/s
GetRange   :      3.145 micros/op; 312.9 MB/s
```

