Performance Report for 1st-Oct-3way-balanced-baseline

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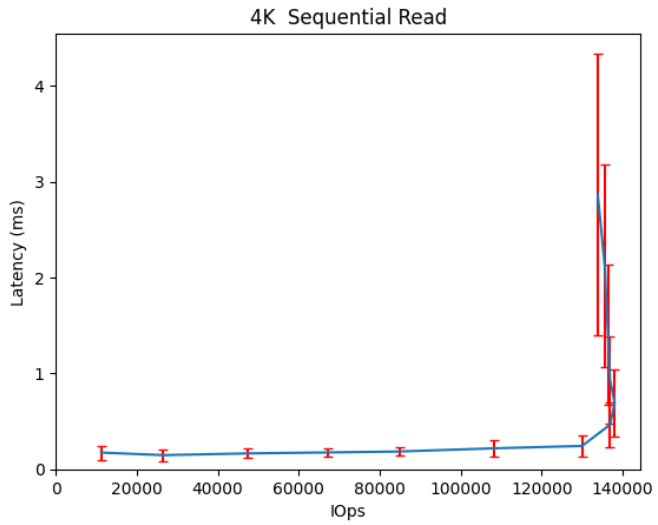
Summary of results for 1st-Oct-3way-balanced-baseline

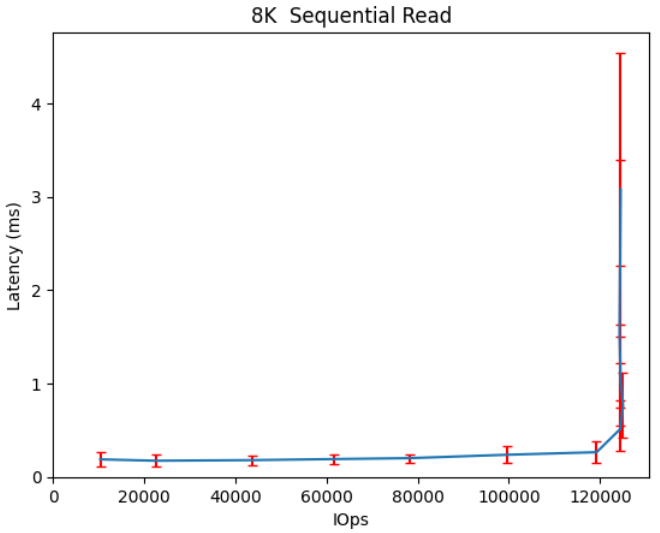
Workload Name	Maximum Throughput	Latency (ms)
4096_read	138070 IOps	0.7
8192_read	125045 IOps	0.8
16384_read	111570 IOps	2.6
32768_read	91239 IOps	2.8
65536_read	4871 MB/s	5.2
131072_read	7798 MB/s	8.6
262144_read	12045 MB/s	16.7
393216_read	10751 MB/s	7.0
524288_read	12733 MB/s	15.8
786432_read	12692 MB/s	23.8
1048576_read	12089 MB/s	8.3
2097152_read	11191 MB/s	9.0
4194304_read	10354 MB/s	19.4
4096_write	492507 IOps	3.1
8192_write	328957 IOps	4.7
16384_write	181650 IOps	5.6
32768_write	101798 IOps	7.5
65536_write	3483 MB/s	9.6
131072_write	3718 MB/s	13.5
262144_write	3924 MB/s	17.0
393216_write	3951 MB/s	25.3
524288_write	4009 MB/s	4.0
786432_write	3992 MB/s	18.5
1048576_write	4015 MB/s	41.2
2097152_write	4146 MB/s	31.1
4194304_write	3816 MB/s	32.8
4096_randread	185438 IOps	4.1
8192_randread	178815 IOps	4.3
16384_randread	164000 IOps	3.6
32768_randread	134280 IOps	2.9
65536_randread	6881 MB/s	3.7
131072_randread	10147 MB/s	3.3
262144_randread	12833 MB/s	5.2
393216_randread	13059 MB/s	7.7
524288_randread	12833 MB/s	3.9
786432_randread	12381 MB/s	4.1
1048576_randread	12053 MB/s	5.6
2097152_randread	11212 MB/s	9.0
4194304_randread	10224 MB/s	19.7
4096_randwrite	49783 IOps	5.1
8192_randwrite	47446 IOps	5.4
16384_randwrite	46475 IOps	8.2
32768_randwrite	43324 IOps	8.8
65536_randwrite	2370 MB/s	10.6
262144_randwrite	4054 MB/s	16.4
524288_randwrite	4531 MB/s	7.1

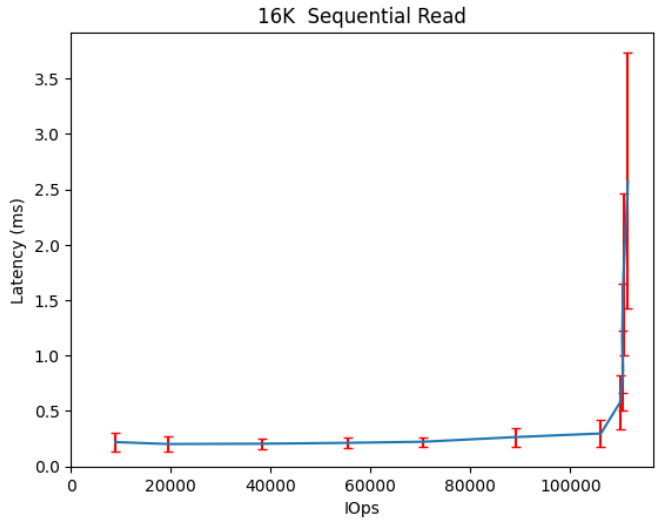
Workload Name	Maximum Throughput	Latency (ms)
1048576_randwrite	4142 MB/s	5.6
4096_70_30_randrw	98855 IOps	2.6
16384_70_30_randrw	89858 IOps	2.8
65536_30_70_randrw	2960 MB/s	5.6
65536_70_30_randrw	4284 MB/s	3.9

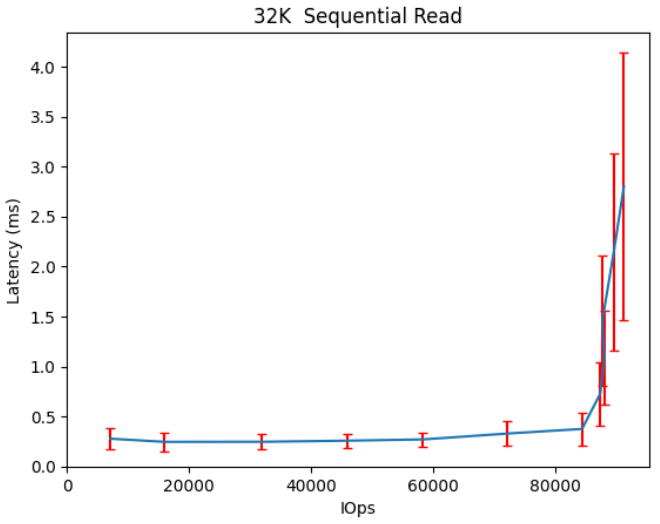
Response Curves

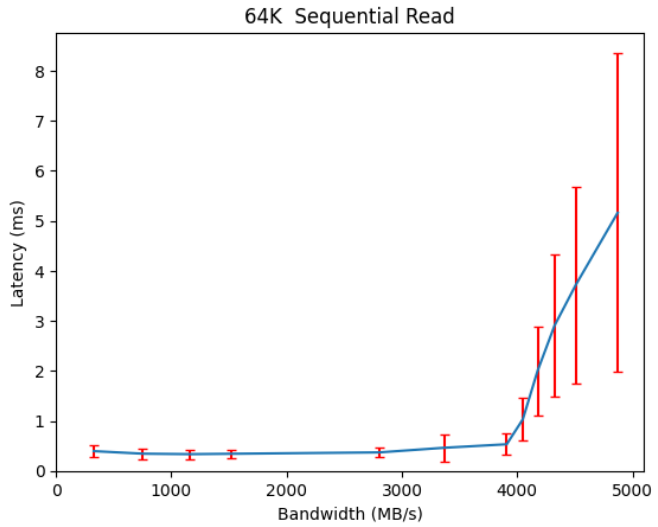
Sequential Read

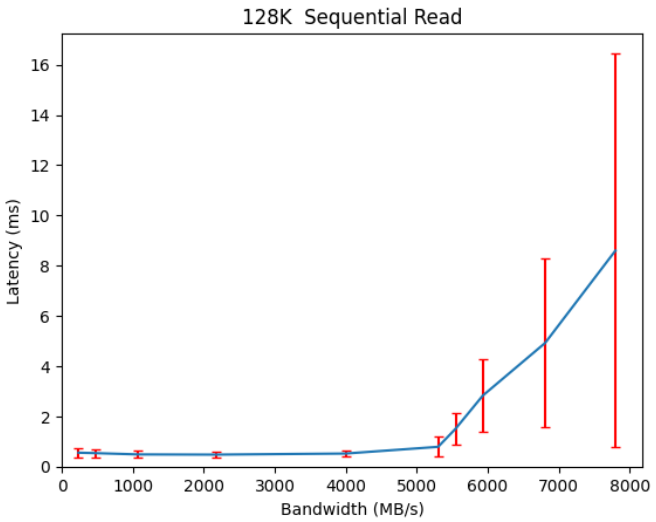


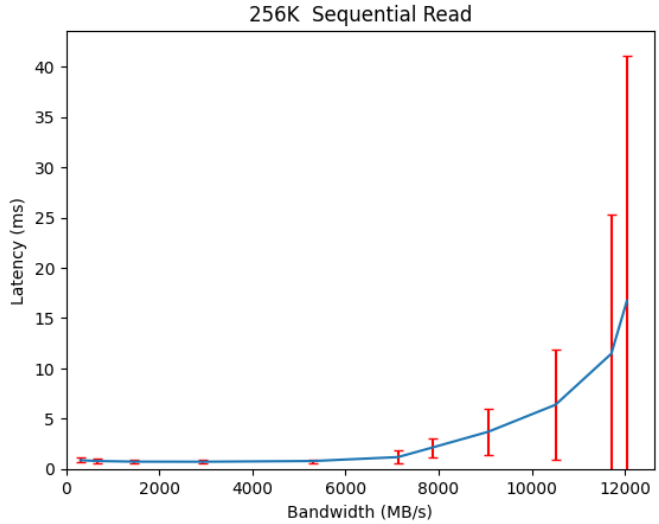







64K Sequential Read
Latency (ms)
Bandwidth (MB/s)


128K Sequential Read
Latency (ms)
Bandwidth (MB/s)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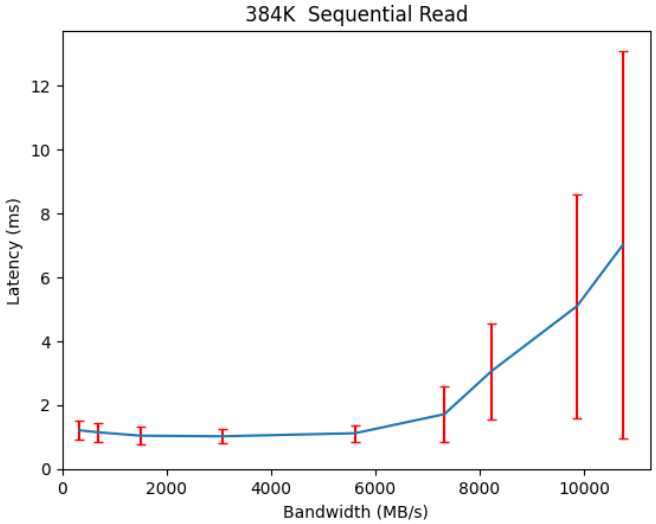
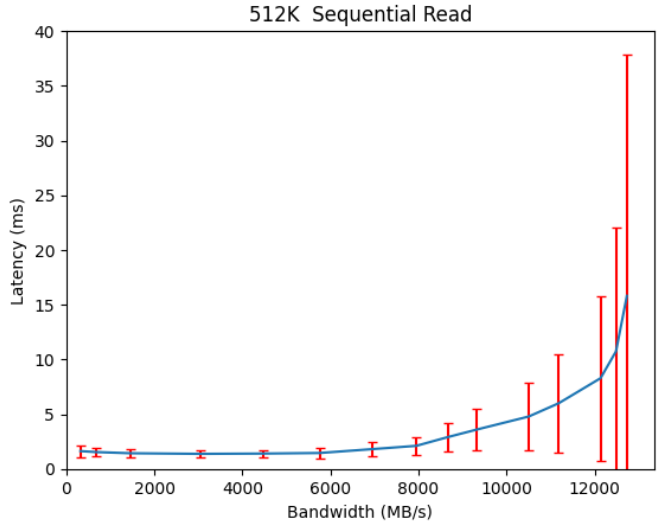
Latency (ms)
Bandwidth (MB/s)


384K Sequential Read
Latency (ms)
Bandwidth (MB/s)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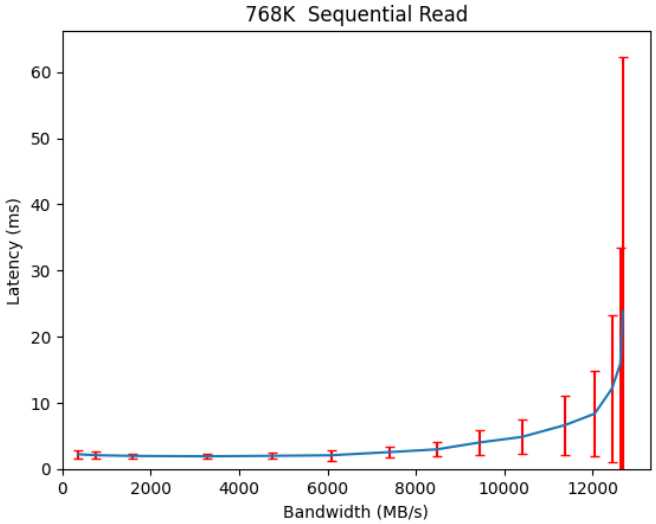
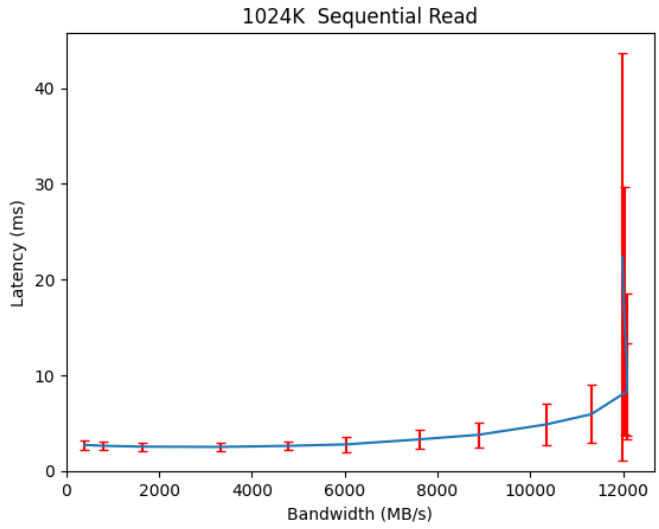
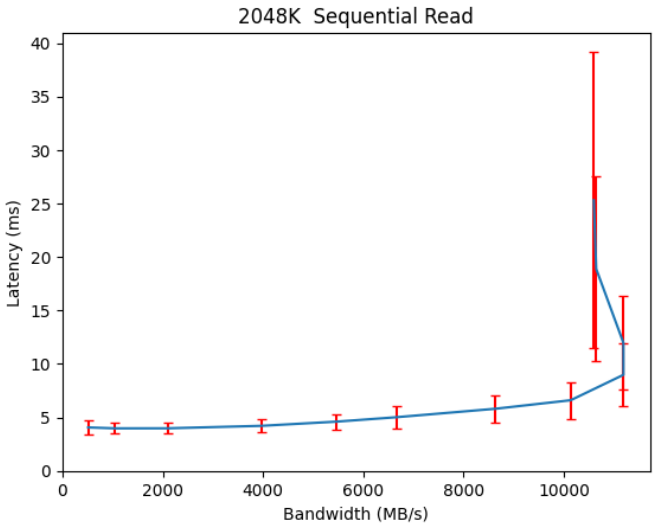
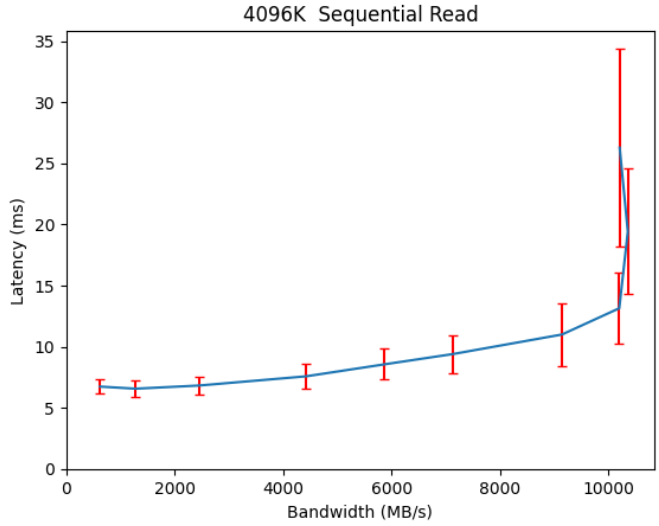
Latency (ms)
Bandwidth (MB/s)

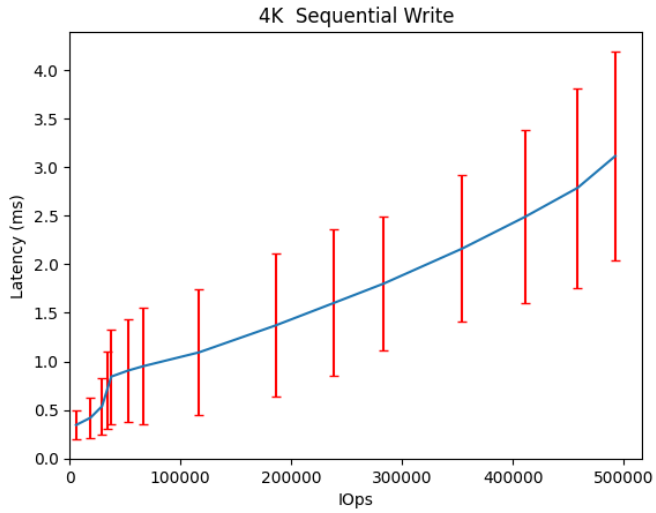

768K Sequential Read
Latency (ms)
Bandwidth (MB/s)

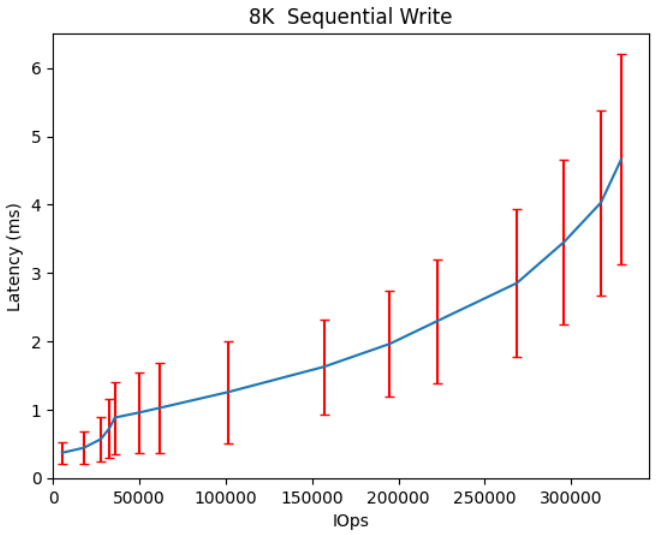


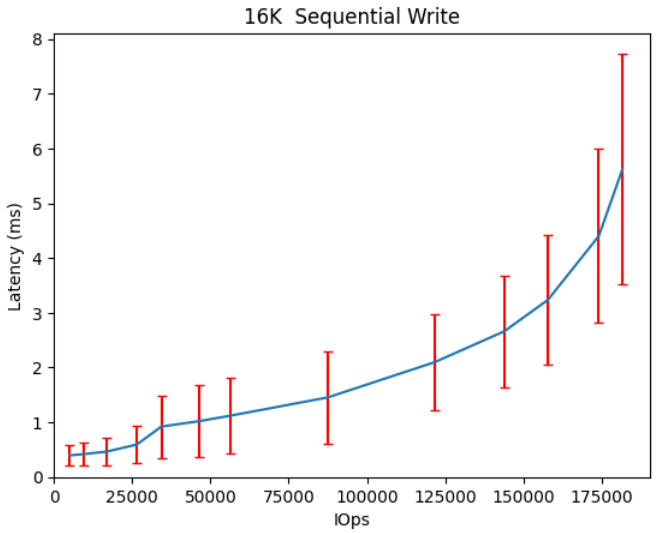


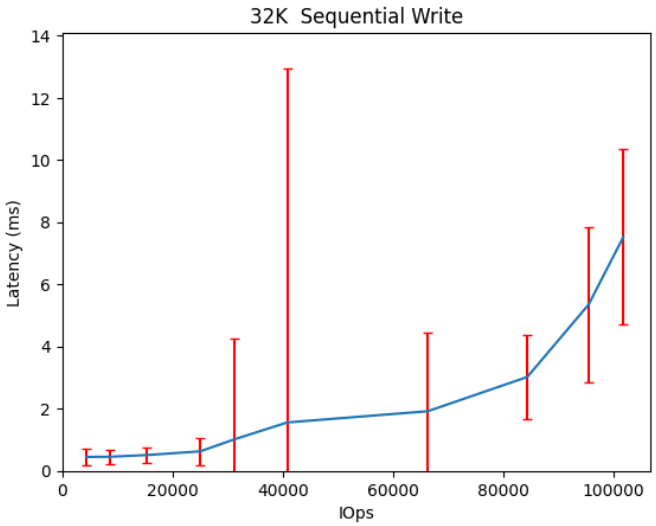


Sequential Write






16K Sequential Write
Latency (ms)
IOps
0
25000
50000
75000
100000
125000
150000
175000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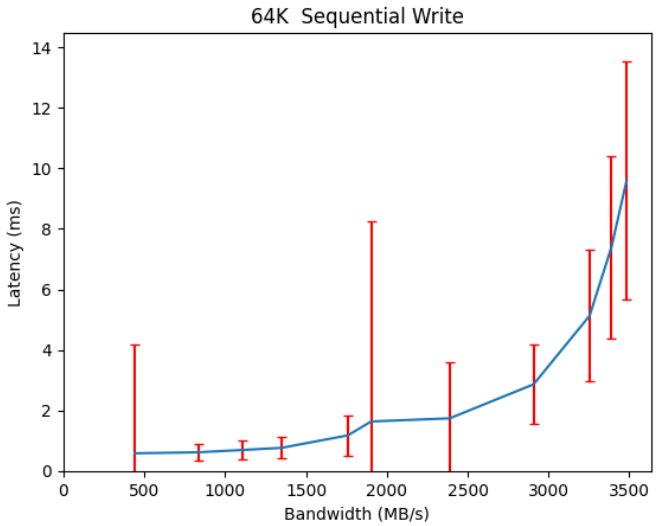
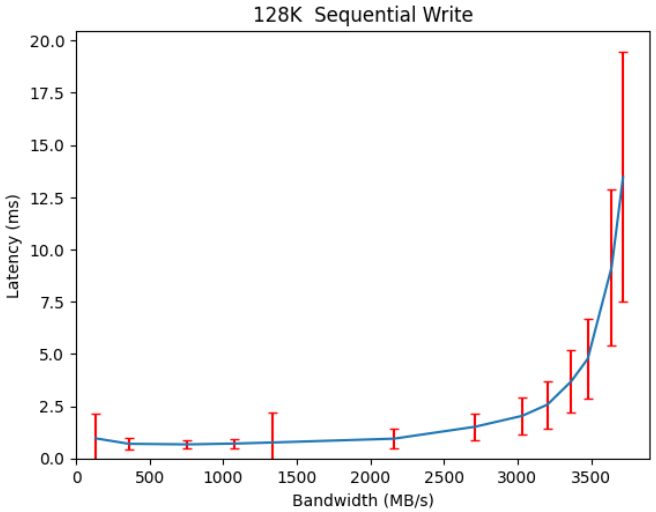
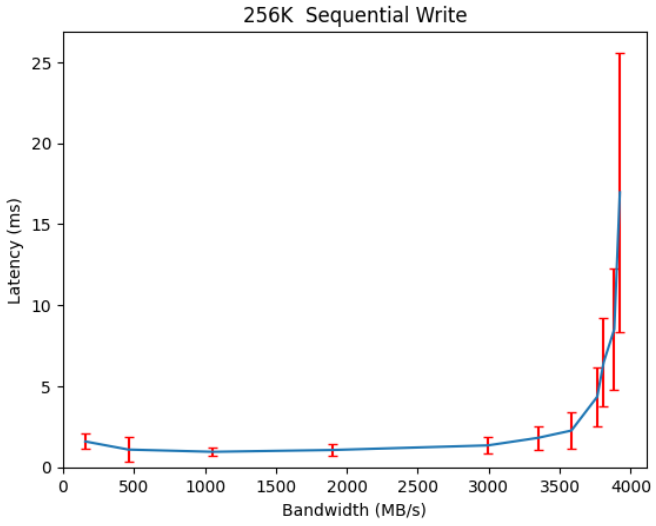
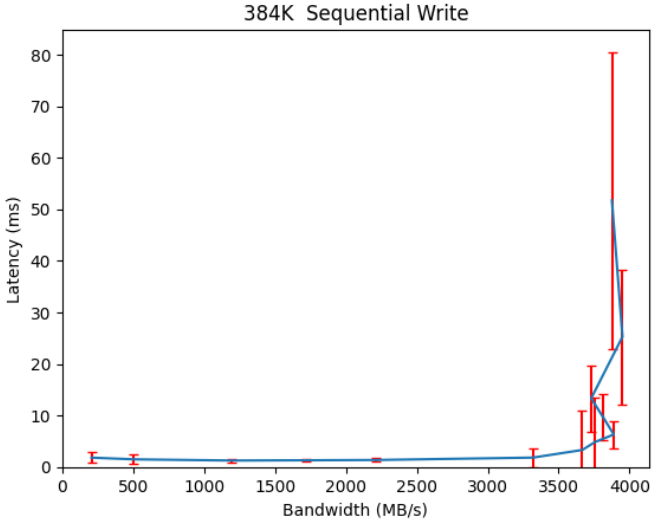
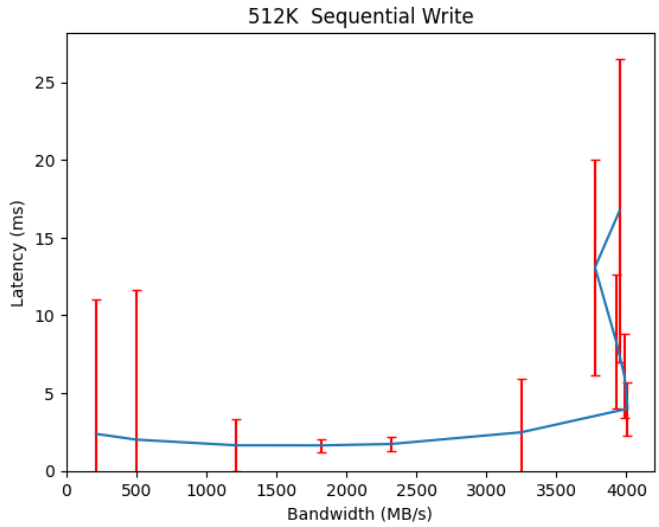
Latency (ms)
IOps
0
20000
40000
60000
80000
100000

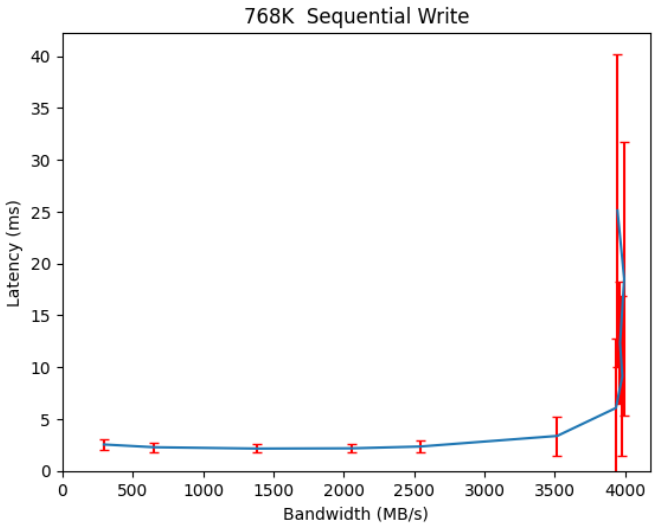

64K Sequential Write
Latency (ms)
Bandwidth (MB/s)
0
500
1000
1500
2000
2500
3000
3500

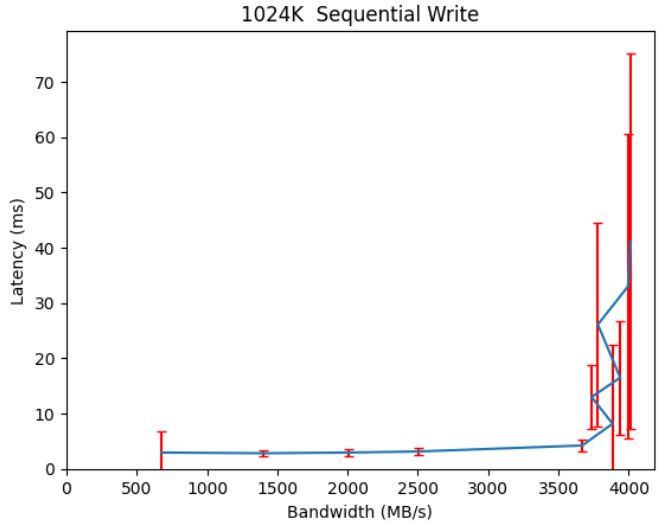

128K Sequential Write
Latency (ms)
Bandwidth (MB/s)
0
500
1000
1500
2000
2500
3000
3500

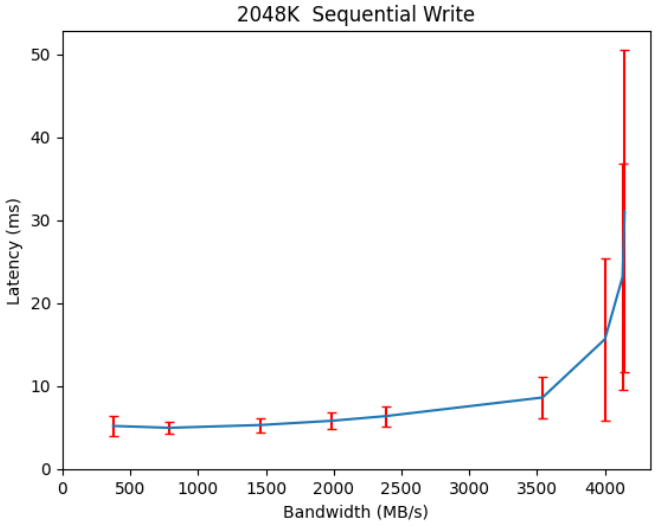

256K Sequential Write
Latency (ms)
Bandwidth (MB/s)
0
500
1000
1500
2000
2500
3000
3500
4000

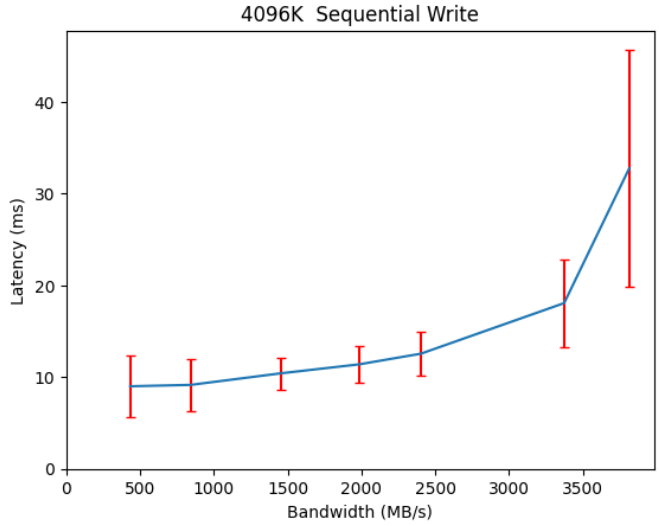

384K Sequential Write
Latency (ms)
Bandwidth (MB/s)
0
500
1000
1500
2000
2500
3000
3500
4000


512K Sequential Write
Latency (ms)
Bandwidth (MB/s)

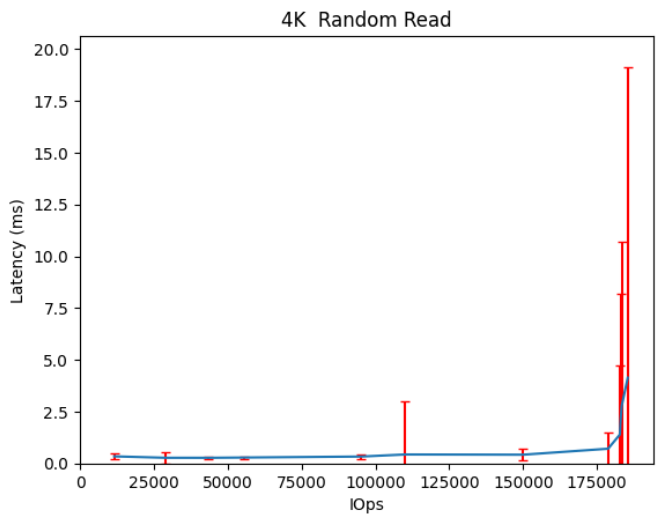

768K Sequential Write
Latency (ms)
Bandwidth (MB/s)

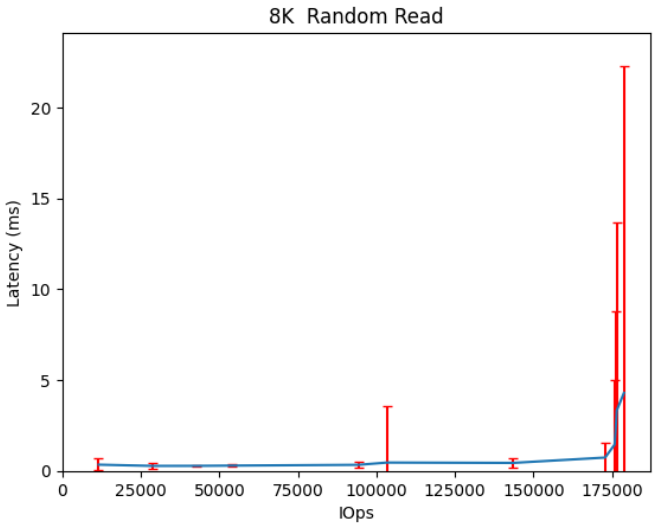

1024K Sequential Write
Latency (ms)
Bandwidth (MB/s)

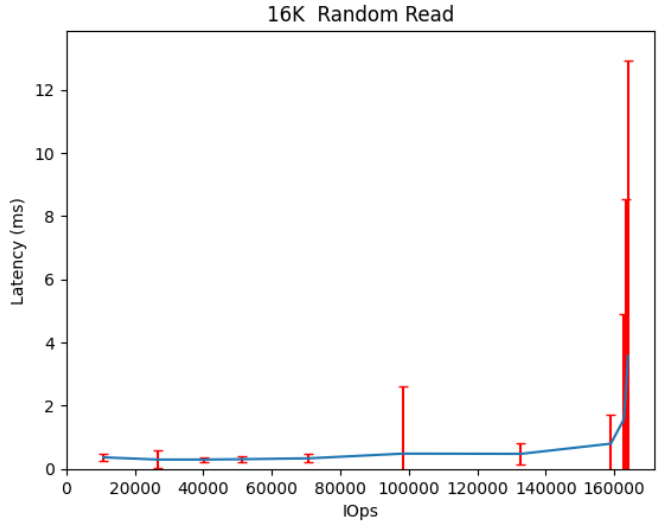

2048K Sequential Write
Latency (ms)
Bandwidth (MB/s)

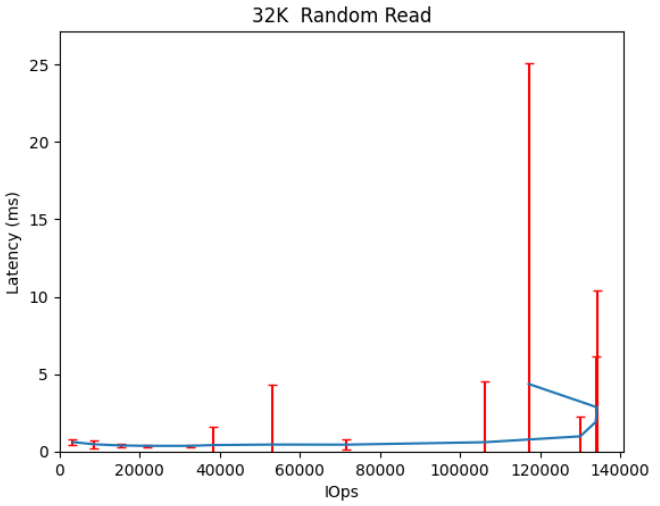

4096K Sequential Write
Latency (ms)
Bandwidth (MB/s)

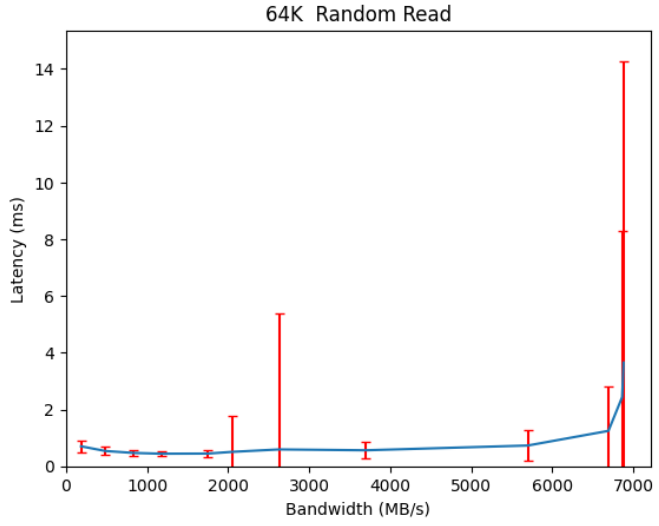
Random Read

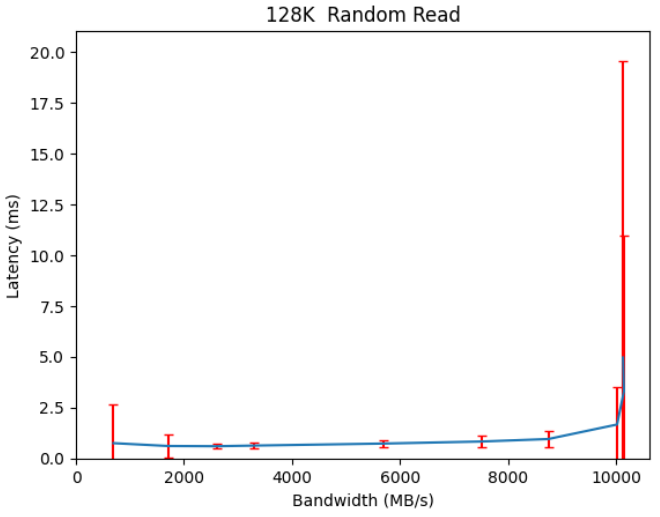

4K Random Read
Latency (ms)
IOps

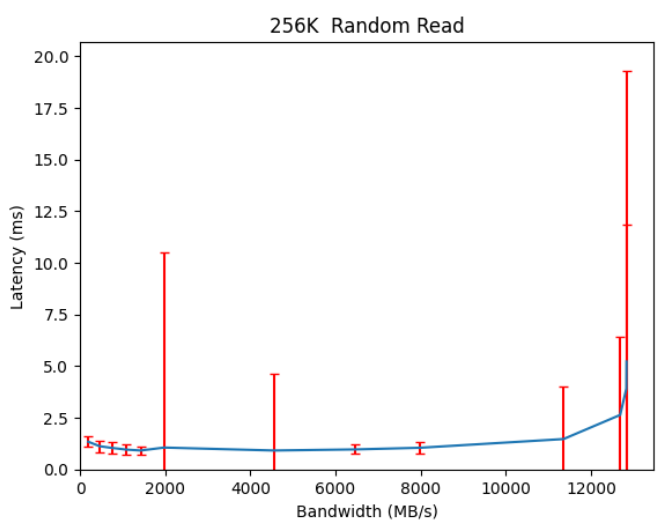

8K Random Read
Latency (ms)
IOps

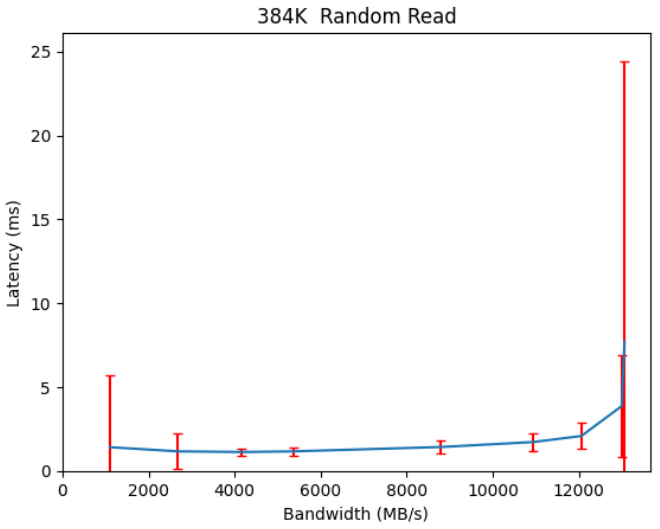

16K Random Read
Latency (ms)
IOps

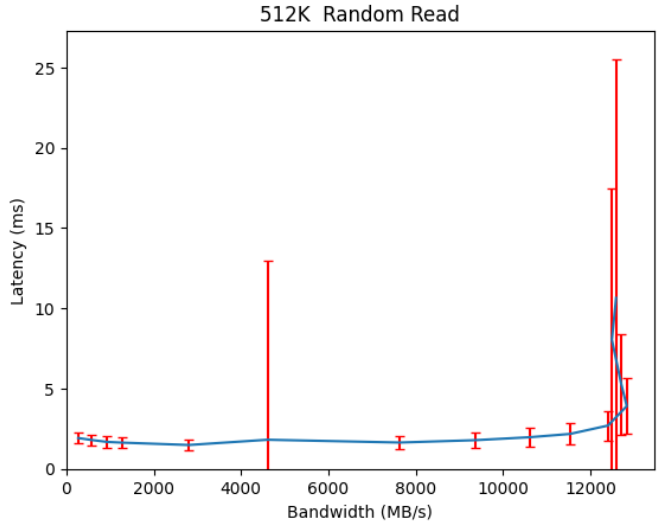

32K Random Read
Latency (ms)
IOps

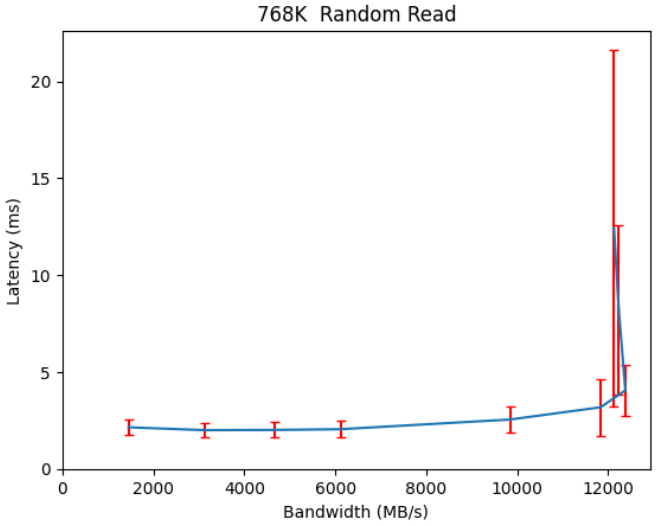

64K Random Read
Latency (ms)
Bandwidth (MB/s)

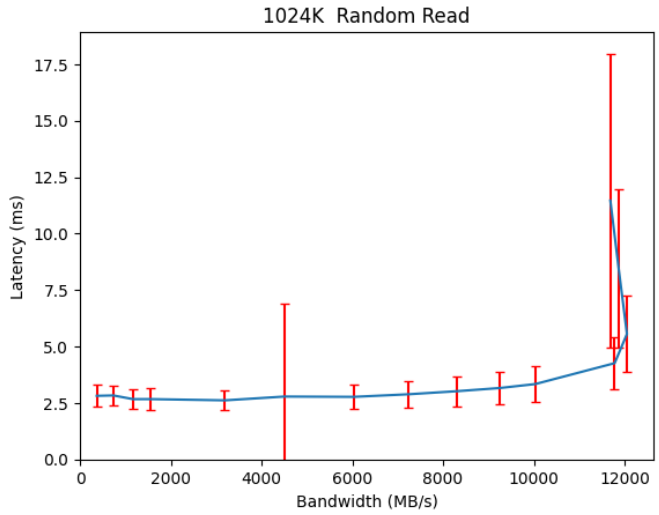

128K Random Read
Latency (ms)
Bandwidth (MB/s)

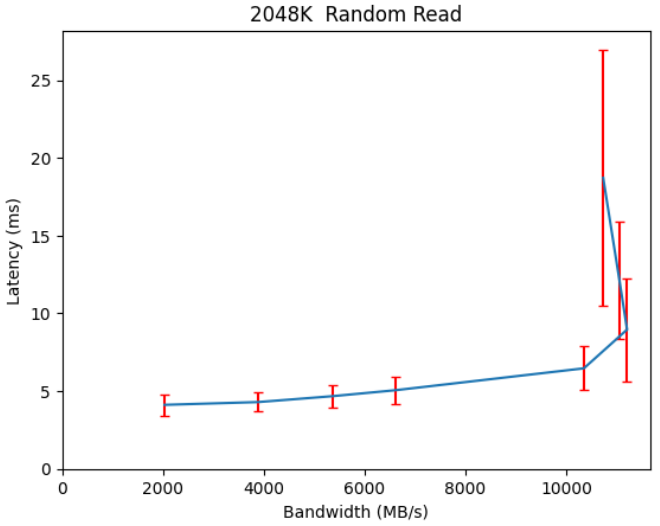

256K Random Read
Latency (ms)
Bandwidth (MB/s)

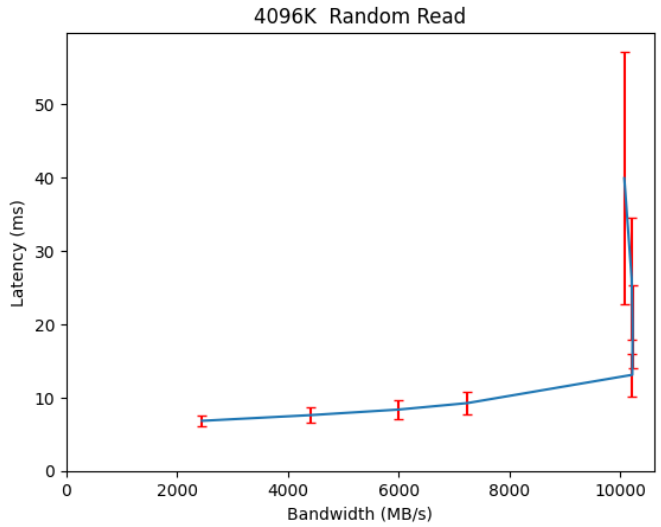

384K Random Read
Latency (ms)
Bandwidth (MB/s)


512K Random Read
Latency (ms)
Bandwidth (MB/s)

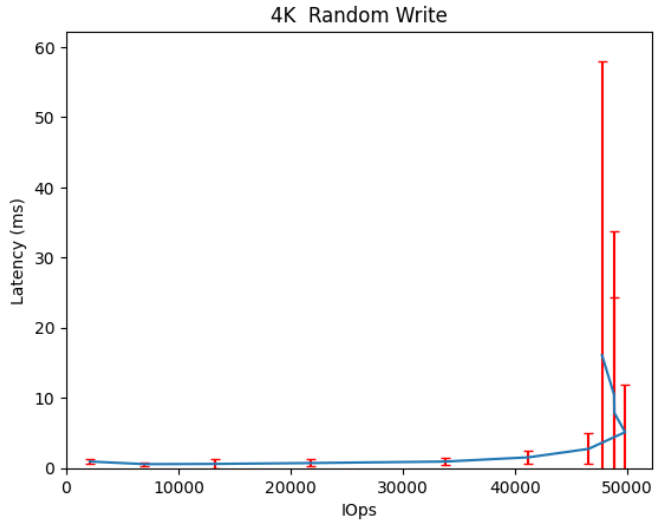

768K Random Read
Latency (ms)
Bandwidth (MB/s)

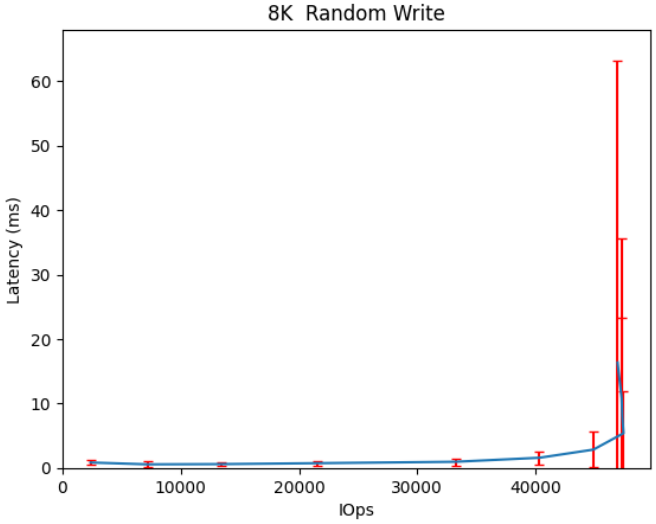

1024K Random Read
Latency (ms)
Bandwidth (MB/s)

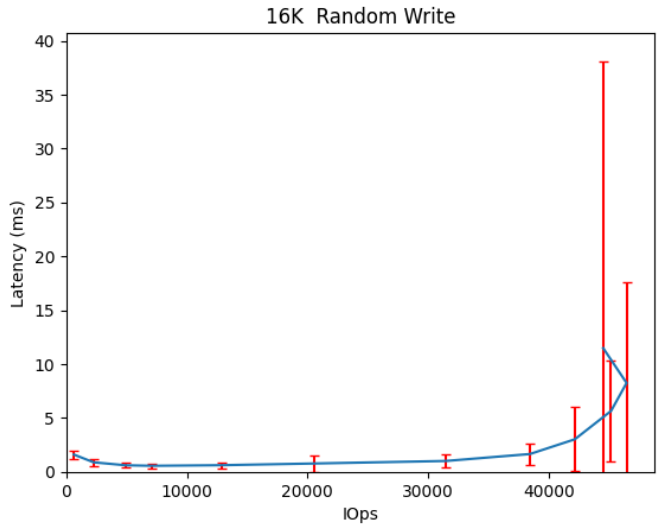

2048K Random Read
Latency (ms)
Bandwidth (MB/s)

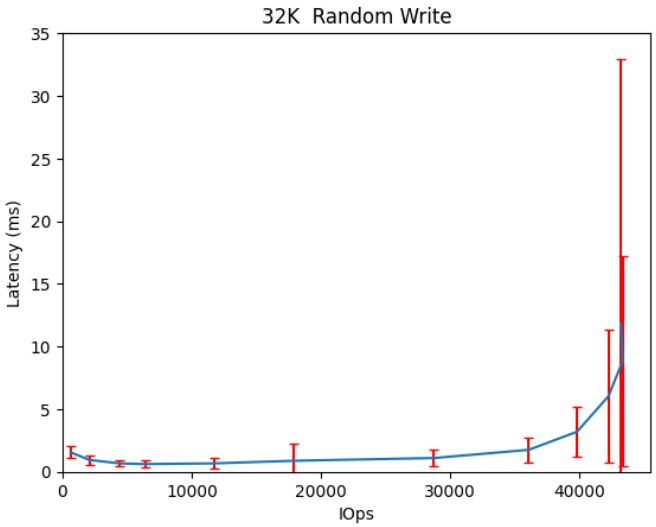


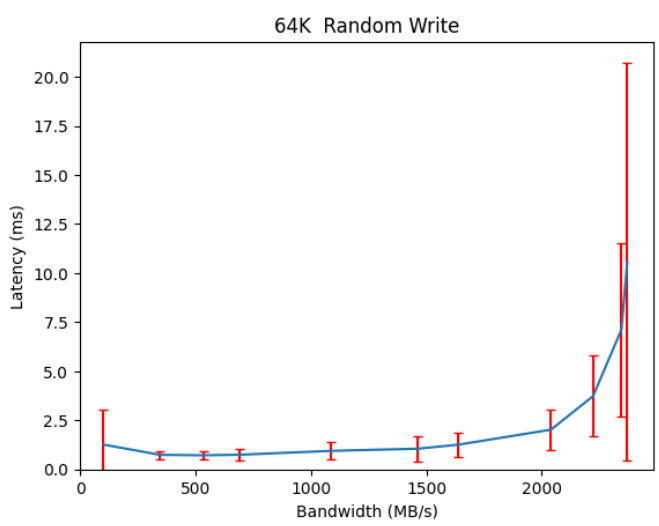
Random Write

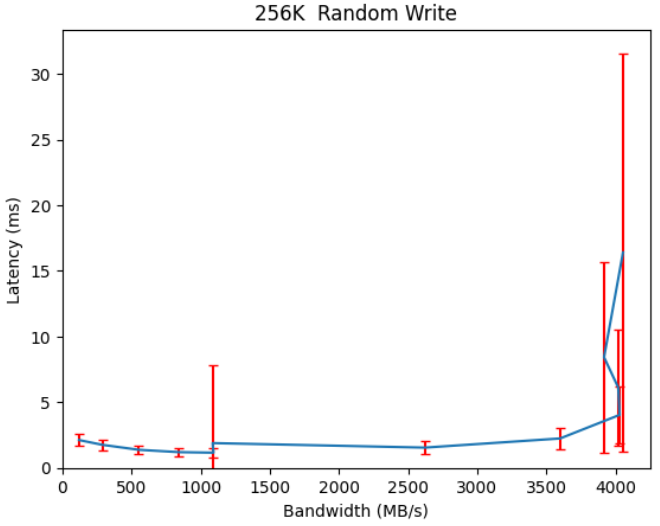


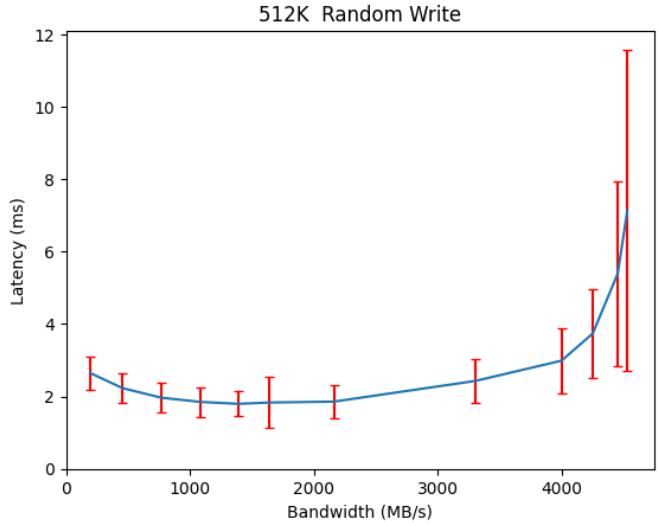


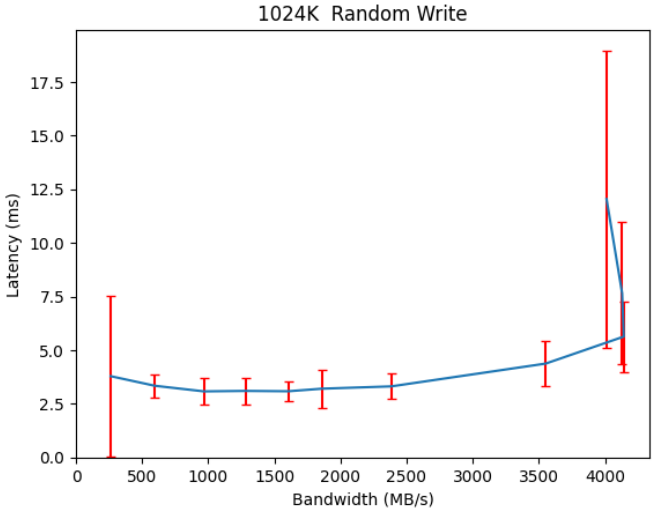




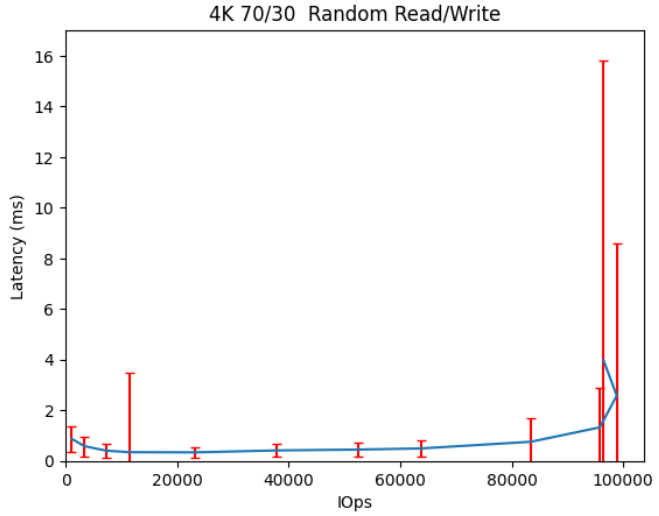


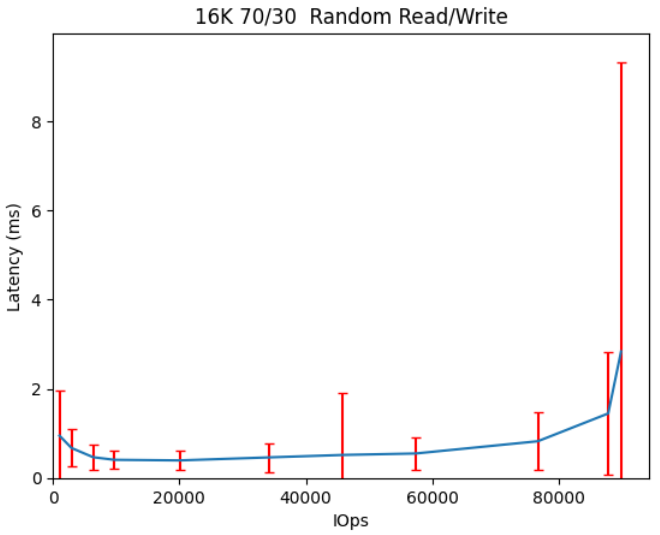


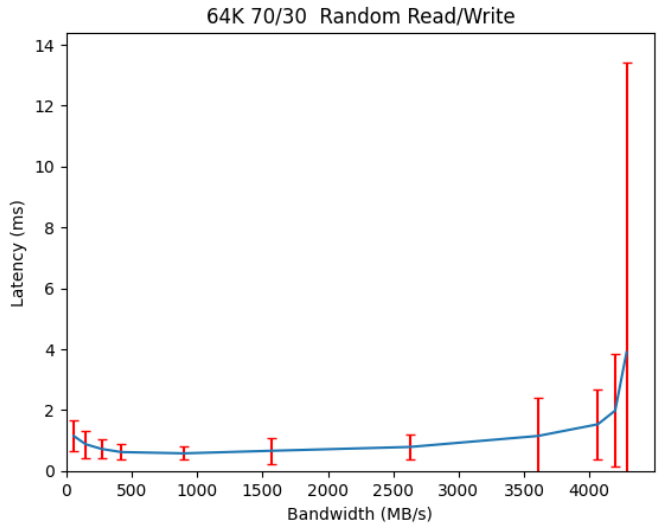


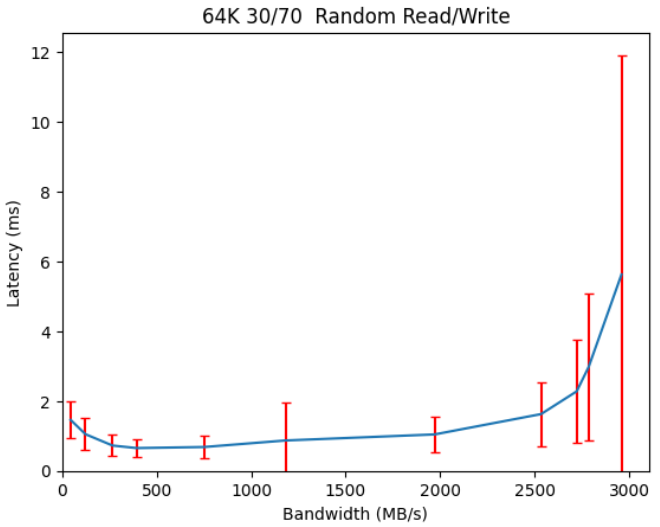


Random Read/Write






64K 70/30 Random Read/Write
Latency (ms)
Bandwidth (MB/s)
0
2
4
6
8
10
12
14
0
500
1000
1500
2000
2500
3000
3500
4000


64K 30/70 Random Read/Write
Latency (ms)
Bandwidth (MB/s)
0
2
4
6
8
10
12
0
500
1000
1500
2000
2500
3000

Configuration yaml

```
librbdfio:
  cmd_path: /usr/local/bin/fio
  fio_out_format: json
  log_avg_msec: 100
  log_bw: true
  log_iops: true
  log_lat: true
  norandommap: true
  osd_ra:
  - 4096
  poolname: rbd_replicated
  prefill:
    blocksize: 64k
    numjobs: 1
  procs_per_volume:
  - 1
  ramp: 30
  rbdname: cbt-librbdfio
  time: 90
  time_based: true
  use_existing_volumes: true
  vol_size: 608333
  volumes_per_client:
  - 16
  workloads:
    128krandomread:
      jobname: randread
      mode: randread
      numjobs:
      - 1
      op_size: 131072
      total_iodepth:
      - 4
      - 8
      - 12
      - 16
      - 32
      - 48
      - 64
      - 128
      - 256
      - 384
    16k7030:
      jobname: randmix
      mode: randrw
      numjobs:
      - 1
      op_size: 16384
      rwmixread: 70
      total_iodepth:
      - 1
```

```
    - 2
    - 3
    - 4
    - 8
    - 16
    - 24
    - 32
    - 64
    - 128
    - 256
  16krandomread:
    jobname: randread
    mode: randread
    numjobs:
    - 1
    op_size: 16384
    total_iodepth:
    - 4
    - 8
    - 12
    - 16
    - 24
    - 48
    - 64
    - 128
    - 256
    - 384
    - 588
  16krandomwrite:
    jobname: randwrite
    mode: randwrite
    numjobs:
    - 1
    op_size: 16384
    total_iodepth:
    - 1
    - 2
    - 3
    - 4
    - 8
    - 16
    - 32
    - 64
    - 128
    - 256
    - 384
    - 512
  1Mrandomread:
    jobname: randread
    mode: randread
    numjobs:
    - 1
    op_size: 1048576
    total_iodepth:
    - 1
    - 2
    - 3
    - 4
    - 8
    - 12
    - 16
    - 20
    - 24
```

```
    - 28
    - 32
    - 48
    - 64
    - 96
    - 128
  1Mrandomwrite:
    jobname: randwrite
    mode: randwrite
    numjobs:
    - 1
    op_size: 1048576
    total_iodepth:
    - 1
    - 2
    - 3
    - 4
    - 5
    - 6
    - 8
    - 16
    - 24
    - 32
    - 48
  1Mseqread:
    jobname: seqread
    mode: read
    numjobs:
    - 1
    op_size: 1048576
    total_iodepth:
    - 1
    - 2
    - 4
    - 8
    - 12
    - 16
    - 24
    - 32
    - 48
    - 64
    - 96
    - 128
    - 192
    - 256
  1Mseqwrite:
    jobname: seqwrite
    mode: write
    numjobs:
    - 1
    op_size: 1048576
    total_iodepth:
    - 2
    - 4
    - 6
    - 8
    - 16
    - 32
    - 48
    - 64
    - 96
    - 128
    - 160
```

```
  256krandomread:
    jobname: randread
    mode: randread
    numjobs:
    - 1
    op_size: 262144
    total_iodepth:
    - 1
    - 2
    - 3
    - 4
    - 5
    - 8
    - 16
    - 24
    - 32
    - 64
    - 128
    - 192
    - 256
  256krandomwrite:
    jobname: randwrite
    mode: randwrite
    numjobs:
    - 1
    op_size: 262144
    total_iodepth:
    - 1
    - 2
    - 3
    - 4
    - 5
    - 8
    - 16
    - 32
    - 64
    - 96
    - 128
    - 256
  2Mrandomread:
    jobname: randread
    mode: randread
    numjobs:
    - 1
    op_size: 2097152
    total_iodepth:
    - 4
    - 8
    - 12
    - 16
    - 32
    - 48
    - 64
    - 96
  2Mseqread:
    jobname: seqread
    mode: read
    numjobs:
    - 1
    op_size: 2097152
    total_iodepth:
    - 1
    - 2
```

```
    - 4
    - 8
    - 12
    - 16
    - 24
    - 32
    - 48
    - 64
    - 96
    - 128
  2Mseqwrite:
    jobname: seqwrite
    mode: write
    numjobs:
    - 1
    op_size: 2097152
    total_iodepth:
    - 1
    - 2
    - 4
    - 6
    - 8
    - 16
    - 32
    - 48
    - 64
  32krandomread:
    jobname: randread
    mode: randread
    numjobs:
    - 1
    op_size: 32768
    total_iodepth:
    - 2
    - 4
    - 6
    - 8
    - 12
    - 16
    - 24
    - 32
    - 64
    - 128
    - 256
    - 384
    - 512
  32krandomwrite:
    jobname: randwrite
    mode: randwrite
    numjobs:
    - 1
    op_size: 32768
    total_iodepth:
    - 1
    - 2
    - 3
    - 4
    - 8
    - 16
    - 32
    - 64
    - 128
    - 256
```

```
  - 384
  - 512
384krandomread:
  jobname: randread
  mode: randread
  numjobs:
  - 1
  op_size: 393216
  total_iodepth:
  - 4
  - 8
  - 12
  - 16
  - 32
  - 48
  - 64
  - 128
  - 256
4Mrandomread:
  jobname: randread
  mode: randread
  numjobs:
  - 1
  op_size: 4194304
  total_iodepth:
  - 4
  - 8
  - 12
  - 16
  - 32
  - 48
  - 64
  - 96
4Mseqread:
  jobname: seqread
  mode: read
  numjobs:
  - 1
  op_size: 4194304
  total_iodepth:
  - 1
  - 2
  - 4
  - 8
  - 12
  - 16
  - 24
  - 32
  - 48
  - 64
4Mseqwrite:
  jobname: seqwrite
  mode: write
  numjobs:
  - 1
  op_size: 4194304
  total_iodepth:
  - 1
  - 2
  - 4
  - 6
  - 8
  - 16
```

```
    - 32
  4k7030:
    jobname: randmix
    mode: randrw
    numjobs:
    - 1
    op_size: 4096
    rwmixread: 70
    total_iodepth:
    - 1
    - 2
    - 3
    - 4
    - 8
    - 16
    - 24
    - 32
    - 64
    - 128
    - 256
    - 384
  4krandomread:
    jobname: randread
    mode: randread
    numjobs:
    - 1
    op_size: 4096
    total_iodepth:
    - 4
    - 8
    - 12
    - 16
    - 32
    - 48
    - 64
    - 128
    - 256
    - 384
    - 512
    - 768
  4krandomwrite:
    jobname: randwrite
    mode: randwrite
    numjobs:
    - 1
    op_size: 4096
    total_iodepth:
    - 2
    - 4
    - 8
    - 16
    - 32
    - 64
    - 128
    - 256
    - 384
    - 512
    - 768
  512krandomread:
    jobname: randread
    mode: randread
    numjobs:
    - 1
```

```
  op_size: 524288
  total_iodepth:
  - 1
  - 2
  - 3
  - 4
  - 8
  - 16
  - 24
  - 32
  - 40
  - 48
  - 64
  - 96
  - 128
  - 192
  - 256
512krandomwrite:
  jobname: randwrite
  mode: randwrite
  numjobs:
  - 1
  op_size: 524288
  total_iodepth:
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 8
  - 16
  - 24
  - 32
  - 48
  - 64
512kseqread:
  jobname: seqread
  mode: read
  numjobs:
  - 1
  op_size: 524288
  total_iodepth:
  - 1
  - 2
  - 4
  - 8
  - 12
  - 16
  - 24
  - 32
  - 48
  - 64
  - 96
  - 128
  - 192
  - 256
  - 384
512kseqwrite:
  jobname: seqwrite
  mode: write
  numjobs:
  - 1
```

```
  op_size: 524288
  total_iodepth:
  - 1
  - 2
  - 4
  - 6
  - 8
  - 16
  - 32
  - 48
  - 64
  - 96
  - 128
64k3070:
  jobname: randmix
  mode: randrw
  numjobs:
  - 1
  op_size: 65536
  rwmixread: 30
  total_iodepth:
  - 1
  - 2
  - 3
  - 4
  - 8
  - 16
  - 32
  - 64
  - 96
  - 128
  - 256
64k7030:
  jobname: randmix
  mode: randrw
  numjobs:
  - 1
  op_size: 65536
  rwmixread: 70
  total_iodepth:
  - 1
  - 2
  - 3
  - 4
  - 8
  - 16
  - 32
  - 64
  - 96
  - 128
  - 256
64krandomread:
  jobname: randread
  mode: randread
  numjobs:
  - 1
  op_size: 65536
  total_iodepth:
  - 2
  - 4
  - 6
  - 8
  - 12
```

```
    - 16
    - 24
    - 32
    - 64
    - 128
    - 256
    - 384
  64krandomwrite:
    jobname: randwrite
    mode: randwrite
    numjobs:
    - 1
    op_size: 65536
    total_iodepth:
    - 2
    - 4
    - 6
    - 8
    - 16
    - 24
    - 32
    - 64
    - 128
    - 256
    - 384
  64kseqread:
    jobname: seqread
    mode: read
    numjobs:
    - 1
    op_size: 65536
    total_iodepth:
    - 2
    - 4
    - 6
    - 8
    - 16
    - 24
    - 32
    - 64
    - 128
    - 192
    - 256
    - 384
  64kseqwrite:
    jobname: seqwrite
    mode: write
    numjobs:
    - 1
    op_size: 65536
    total_iodepth:
    - 4
    - 8
    - 12
    - 16
    - 32
    - 48
    - 64
    - 128
    - 256
    - 384
    - 512
  768krandomread:
```

```
    jobname: randread
    mode: randread
    numjobs:
    - 1
    op_size: 786432
    total_iodepth:
    - 4
    - 8
    - 12
    - 16
    - 32
    - 48
    - 64
    - 128
    - 192
  8krandomread:
    jobname: randread
    mode: randread
    numjobs:
    - 1
    op_size: 8192
    total_iodepth:
    - 4
    - 8
    - 12
    - 16
    - 32
    - 48
    - 64
    - 128
    - 256
    - 384
    - 588
    - 768
  8krandomwrite:
    jobname: randwrite
    mode: randwrite
    numjobs:
    - 1
    op_size: 8192
    total_iodepth:
    - 2
    - 4
    - 8
    - 16
    - 32
    - 64
    - 128
    - 256
    - 384
    - 512
    - 768
  precondition:
    jobname: precond1rw
    mode: randwrite
    monitor: false
    numjobs:
    - 1
    op_size: 65536
    time: 600
    total_iodepth:
    - 16
  seq128kread:
```

```
    jobname: seqread
    mode: read
    numjobs:
    - 1
    op_size: 131072
    total_iodepth:
    - 1
    - 2
    - 4
    - 8
    - 16
    - 32
    - 64
    - 128
    - 256
    - 512
  seq128kwrite:
    jobname: seqwrite
    mode: write
    numjobs:
    - 1
    op_size: 131072
    total_iodepth:
    - 1
    - 2
    - 4
    - 6
    - 8
    - 16
    - 32
    - 48
    - 64
    - 96
    - 128
    - 256
    - 384
  seq16kread:
    jobname: seqread
    mode: read
    numjobs:
    - 1
    op_size: 16384
    total_iodepth:
    - 2
    - 4
    - 8
    - 12
    - 16
    - 24
    - 32
    - 64
    - 96
    - 128
    - 192
    - 288
  seq16kwrite:
    jobname: seqwrite
    mode: write
    numjobs:
    - 1
    op_size: 16384
    total_iodepth:
    - 2
```

```
    - 4
    - 8
    - 16
    - 32
    - 48
    - 64
    - 128
    - 256
    - 384
    - 512
    - 768
    - 1024
  seq256kread:
    jobname: seqread
    mode: read
    numjobs:
    - 1
    op_size: 262144
    total_iodepth:
    - 1
    - 2
    - 4
    - 8
    - 16
    - 32
    - 64
    - 128
    - 256
    - 512
    - 768
  seq256kwrite:
    jobname: seqwrite
    mode: write
    numjobs:
    - 1
    op_size: 262144
    total_iodepth:
    - 1
    - 2
    - 4
    - 8
    - 16
    - 24
    - 32
    - 64
    - 96
    - 128
    - 256
  seq32kread:
    jobname: seqread
    mode: read
    numjobs:
    - 1
    op_size: 32768
    total_iodepth:
    - 2
    - 4
    - 8
    - 12
    - 16
    - 24
    - 32
    - 64
```

```
    - 96
    - 128
    - 192
    - 256
  seq32kwrite:
    jobname: seqwrite
    mode: write
    numjobs:
    - 1
    op_size: 32768
    total_iodepth:
    - 2
    - 4
    - 8
    - 16
    - 32
    - 64
    - 128
    - 256
    - 512
    - 768
  seq384kread:
    jobname: seqread
    mode: read
    numjobs:
    - 1
    op_size: 393216
    total_iodepth:
    - 1
    - 2
    - 4
    - 8
    - 16
    - 32
    - 64
    - 128
    - 192
  seq384kwrite:
    jobname: seqwrite
    mode: write
    numjobs:
    - 1
    op_size: 393216
    total_iodepth:
    - 1
    - 2
    - 4
    - 6
    - 8
    - 16
    - 32
    - 48
    - 64
    - 96
    - 128
    - 256
    - 512
  seq4kread:
    jobname: seqread
    mode: read
    numjobs:
    - 1
    op_size: 4096
```

```
    total_iodepth:
    - 2
    - 4
    - 8
    - 12
    - 16
    - 24
    - 32
    - 64
    - 96
    - 128
    - 192
    - 288
    - 384
  seq4kwrite:
    jobname: seqwrite
    mode: write
    numjobs:
    - 1
    op_size: 4096
    total_iodepth:
    - 2
    - 8
    - 16
    - 24
    - 32
    - 48
    - 64
    - 128
    - 256
    - 384
    - 512
    - 768
    - 1024
    - 1280
    - 1536
  seq768kread:
    jobname: seqread
    mode: read
    numjobs:
    - 1
    op_size: 786432
    total_iodepth:
    - 1
    - 2
    - 4
    - 8
    - 12
    - 16
    - 24
    - 32
    - 48
    - 64
    - 96
    - 128
    - 192
    - 256
    - 384
  seq768kwrite:
    jobname: seqwrite
    mode: write
    numjobs:
    - 1
```

```
        op_size: 786432
        total_iodepth:
        - 1
        - 2
        - 4
        - 6
        - 8
        - 16
        - 32
        - 48
        - 64
        - 96
        - 128
      seq8kread:
        jobname: seqread
        mode: read
        numjobs:
        - 1
        op_size: 8192
        total_iodepth:
        - 2
        - 4
        - 8
        - 12
        - 16
        - 24
        - 32
        - 64
        - 96
        - 128
        - 192
        - 288
        - 384
      seq8kwrite:
        jobname: seqwrite
        mode: write
        numjobs:
        - 1
        op_size: 8192
        total_iodepth:
        - 2
        - 8
        - 16
        - 24
        - 32
        - 48
        - 64
        - 128
        - 256
        - 384
        - 512
        - 768
        - 1024
        - 1280
        - 1536
cluster:
  archive_dir: /tmp/cbt
  ceph-mgr_cmd: /usr/bin/ceph-mgr
  ceph-mon_cmd: /usr/bin/ceph-mon
  ceph-osd_cmd: /usr/bin/ceph-osd
  ceph-run_cmd: /usr/bin/ceph-run
  ceph_cmd: /usr/bin/ceph
  clients:
```

```
  - --- server1 ---
  clusterid: ceph
  conf_file: /cbt/ceph.conf.4x1x1.fs
  fs: xfs
  head: --- server1 ---
  iterations: 1
  mgrs:
    --- server1 ---:
      a: null
  mkfs_opts: -f -i size=2048
  mons:
    --- server1 ---:
      a: --- IP Address --:6789
  mount_opts: -o inode64,noatime,logbsize=256k
  osds:
  - --- server1 ---
  osds_per_node: 8
  pdsh_ssh_args: -a -x -l%u %h
  rados_cmd: /usr/bin/rados
  rbd_cmd: /usr/bin/rbd
  tmp_dir: /tmp/cbt
  use_existing: true
  user: ljsanders
monitoring_profiles:
  collectl:
    args: -c 18 -sCD -i 10 -P -oz -F0 --rawtoo --sep ";" -f {collectl_dir}
```