Comparitive Performance Report for cbt-3rdApr-4k-squid192-6+2-o01-rbdsimple-isal vs cbt-2ndApr-4k-main-o01-rbdsimple-isal vs cbt-7thApr-4k-ecopt2-o01-pdwauto-6+2 vs cbt-7thApr-16k-ecopt2-o01-pdwauto-6+2

Comparitive Performance Report for cbt-3rdApr-4k-squid192-6+2-001-rbdsimple-isal vs cbt-2ndApr-4k-main-001-rbdsimple-isal vs cbt-7thApr-4k-ecopt2-001-pdwauto-6+2 vs cbt-7thApr-16k-ecopt2-001-pdwauto-6+2

Table of contents

- $\hbox{--} Comparison summary for cbt-3rdApr-4k-squid192-6+2-001-rbd simple-is al vs cbt-2ndApr-4k-main-o01-rbd simple-is al vs cbt-7thApr-4k-ecopt2-001-pdwauto-6+2 vs cbt-7thApr-16k-ecopt2-001-pdwauto-6+2 \\$
- Response Curves
 - Sequential Read
 - Sequential Write
 - Random Read
 - Random Write
 - Random Read/Write
- Configuration yaml files
 - results

Comparison summary for cbt-3rdApr-4k-squid192-6+2-o01-rbdsimple-isal vs cbt-2ndApr-4k-main-o01-rbdsimple-isal vs cbt-7thApr-4k-ecopt2-o01-pdwauto-6+2 vs cbt-7thApr-16k-ecopt2-o01-pdwauto-6+2

| Sequential | | | | | | | |
|------------|-----------------------|-----------------------------------|--------------------------|---------------------------------------|----------------------------|--|------------------------|
| Read | $cbt_3rdApr_$ | 40dstsq2 nd149 22 <u>r</u> | <u>64k2 % odilang</u> od | si n hptds 77 tilga A eprisalk | _ &colpat2i ge0 | 1 <u>ch</u> pt <u>dw</u> 7athrAo <u>pr6</u> -401 | k_ %chpn &e_001 |
| 4K | 39660@4.5ms | 106341@1.1 | 168% | 108873@2.2 | 175% | 103798@2.3 | 162% |
| 8K | 36440@4.9ms | 65926@1.8 | 81% | 66391@3.6 | 82% | 97254@2.5 | 167% |
| 16K | 31632@5.7 ms | 37932@3.2 | 20% | 38092@4.7 | 20% | 92208@1.9 | 192% |
| 32K | 25426@4.7ms | 25584@4.7 | 1% | 26035@4.6 | 2% | 45707@0.9 | 80% |
| 64K | $1508@6.9\mathrm{ms}$ | 1222@2.1 | -19% | 1482@5.3 | -2% | 2049@5.1 | 36% |
| 256K | 3131@3.3 ms | 3116@3.4 | -0% | 3312@3.2 | 6% | 3547@2.9 | 13% |
| 512K | 3773@2.5 ms | 3743@2.5 | -1% | 3890@2.4 | 3% | 4205@2.2 | 11% |
| 1024K | 4032@2.6ms | 4006@2.6 | -1% | 4240@2.5 | 5% | 4662@2.2 | 16% |

| Sequential Write | cbt_3rdApr_4kb <u>tsq2rid1492r</u> | 64k2 % Milianglodsinlpds 7 tilpalepris alk | _‰opange01 <u>chtd√ahtApr6</u> 48k <u></u> ‰ch | ph <u>ge</u> o01_pd |
|---------------------|---|--|--|----------------------------|
| 4K | 60783@10.5ms 60009@10.7 | -1% 120742@5.3 | 99% 121188@5.3 | 99% |
| 8K | $73313@10.9 \text{ms} \ 74238@10.8$ | 1% 112090@7.1 | 53% $113139@7.1$ | 54% |
| 16K | 31663@10.1ms $32299@9.9$ | 2% 52930@6.0 | $67\% \qquad 53185@6.0$ | 68% |
| 32K | 30857@15.5ms $35487@13.5$ | 15% 40842@11.7 | 32% 47224@10.1 | 53% |
| 64K | 1346@15.5ms 1320@15.9 | -2% 1532@13.7 | $14\% \qquad 1684@12.4$ | 25% |
| 256K | 1830@22.8ms 1812@23.0 | -1% 1999@20.9 | $9\% \qquad 2117@19.7$ | 16% |
| 512K | 1911@21.7ms 1838@22.6 | -4% 2090@19.8 | $9\% \qquad 2224@18.6$ | 16% |
| 1024K | 2475@41.9ms 2289@45.3 | -8% 2659@38.9 | 7% 2711@38.1 | 10% |

| 8K 23197@15.9ms 48127@5.0 107% 47236@10.2 104% 65722@5.6 18 | |
|--|----------------------|
| 8K 23197@15.9ms 48127@5.0 107% 47236@10.2 104% 65722@5.6 18 | ng e_001_pdwa |
| | 9% |
| 16K 23161@16.0ms 31063@7.7 34% 29980@12.3 29% 63017@3.8 17 | 3% |
| | 2% |
| 32K 21703@7.4ms 22222@7.2 2% 21400@7.5 -1% 39875@4.0 | 4% |
| 64K 1337@7.8ms 1319@7.9 -1% 1277@8.2 -4% 1669@6.3 | 5% |
| 256K 2907@7.2ms 2864@7.3 -1% 3004@7.0 3% 3254@6.4 1 | 2% |
| 512K $4167@3.5ms$ $4091@3.6$ $-2%$ $4137@3.5$ $-1%$ $4459@3.3$ | 7% |
| 1024K 4377@4.8ms 4349@4.8 -1% 4537@4.1 4% 5051@3.7 | 5% |

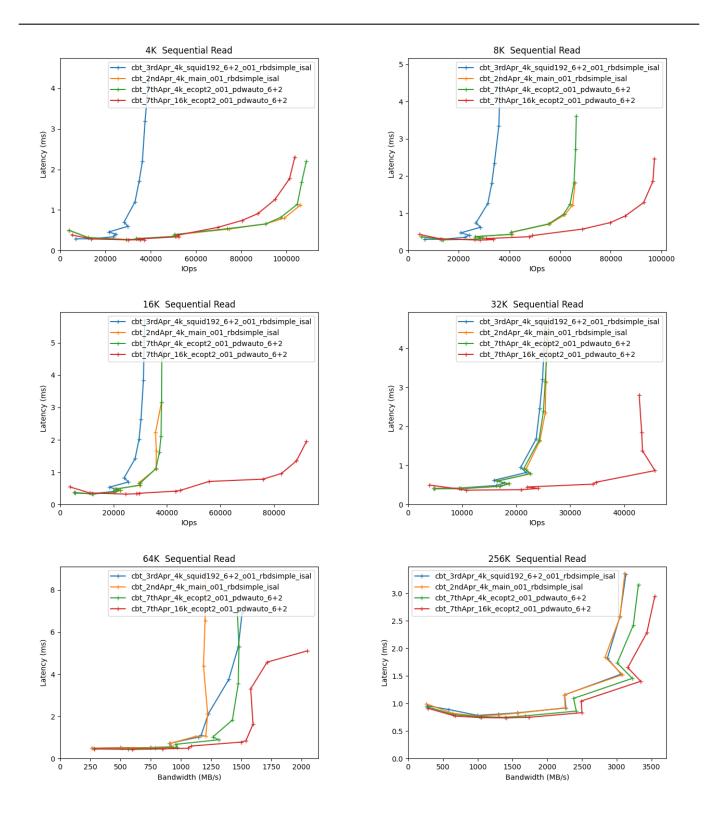
 $Comparison \ summary \ for \ cbt-3rdApr-4k-squid192-6+2-o01-rbdsimple-isal \ vs \ cbt-2ndApr-4k-main-o01-rbdsimple-isal \ vs \ cbt-7thApr-4k-ecopt2-o01-pdwauto-6+2 \ vs \ cbt-7thApr-16k-ecopt2-o01-pdwauto-6+2$

| Random | | | | | | | |
|--------|-----------------------|-------------------------|--------|------------------------------------|---------------------|--|---------------------------------|
| Write | ${\rm cbt_3rdApr_}$ | 4kbtsq2 nd149 2r | 64k2 % | si mbptds77tilgaN eprisaUk_ | _ %olpa2 ge0 | 1 <u>cb</u> pt <u>dv</u> 7athr4xp <u>r6</u> -4 | ß k_ %ch≱n &e_o01 |
| 4K | 8127@59.0ms | 7292@65.8 | -10% | 15288@31.4 | 88% | 14771@21.7 | 82% |
| 8K | 7923@60.6ms | 7233@66.3 | -9% | 13160@36.5 | 66% | 14129@34.0 | 78% |
| 16K | 7438@43.0 ms | 6864@46.6 | -8% | 10539@30.3 | 42% | 12762@25.1 | 72% |
| 32K | 7212@44.3 ms | 6543@48.9 | -9% | 8324@38.4 | 15% | 10989@29.1 | 52% |
| 64K | 431@36.4ms | 392@40.1 | -9% | 510@30.8 | 18% | 551@28.5 | 28% |
| 256K | 1250@33.4ms | 1108@37.7 | -11% | 1370@30.5 | 10% | 1439@29.0 | 15% |
| 512K | 1730@5.3ms | 1695@5.4 | -2% | 1887@4.8 | 9% | 1905@10.7 | 10% |
| 1024K | 2404@7.4ms | 2298@7.8 | -4% | 2697@6.6 | 12% | 2760@6.4 | 15% |

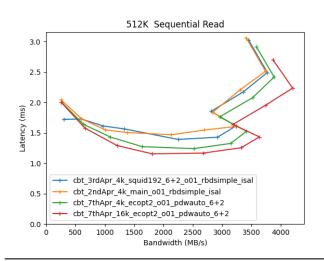
| Random | | | | | | | | |
|-------------------------|-----------------------|--|--------------------------|--|---------------------|---------------------------|----------------|--------|
| Read/Write | cbt_3rdApr_ | _40 k btsq2 nd149 p2r_ | <u>64k2 Madila nglod</u> | si mb pd si/tibpal eprisalk_ | _ %olpa2 ge0 | 1 <u>chtdwathtApr6-40</u> | k_%change_001_ | _pdwat |
| $4K_{-}70/30$ | 15414@15.6ms | s 17869@4.5 | 16% | 32801@7.3 | 113% | 30592@7.8 | 98% | |
| $16 K_{-}70/30$ | 14187@11.3ms | s 15120@10.6 | 7% | 19070@8.4 | 34% | 25962@6.1 | 83% | |
| $64 \text{K}_{30} / 70$ | $517@20.3\mathrm{ms}$ | 477@21.9 | -8% | 596@17.5 | 15% | 652@16.1 | 26% | |
| 64K_70/30 | $825@12.7\mathrm{ms}$ | 770@13.6 | -7% | 884@11.8 | 7% | 962@10.9 | 17% | |

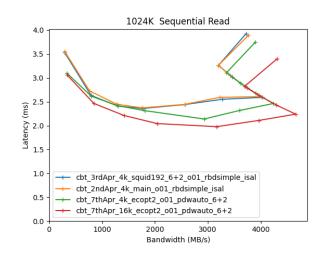
Response Curves

Sequential Read

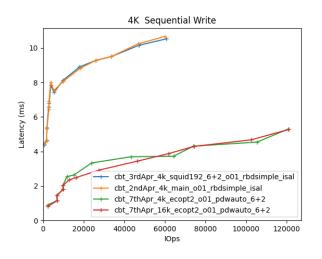


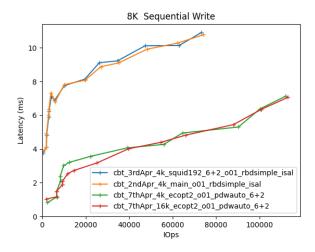
Response Curves Sequential Write

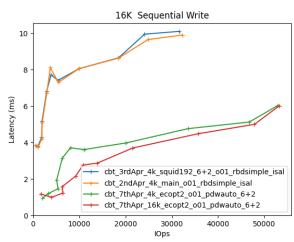


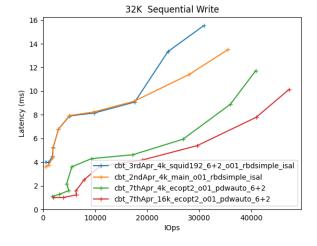


Sequential Write

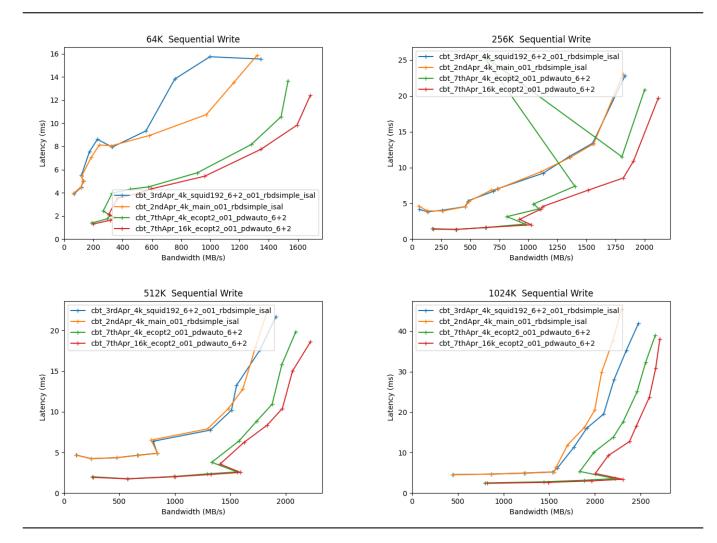




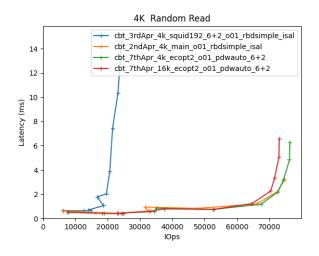


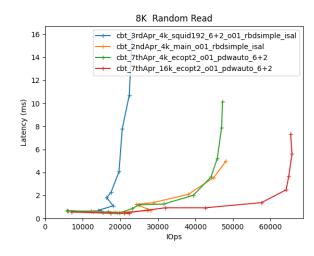


Response Curves Random Read

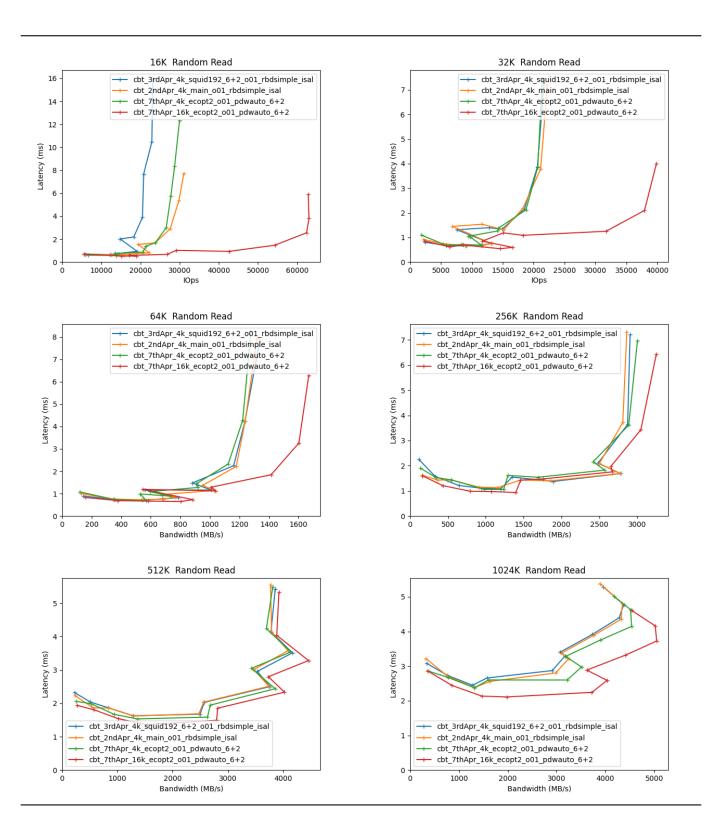


Random Read



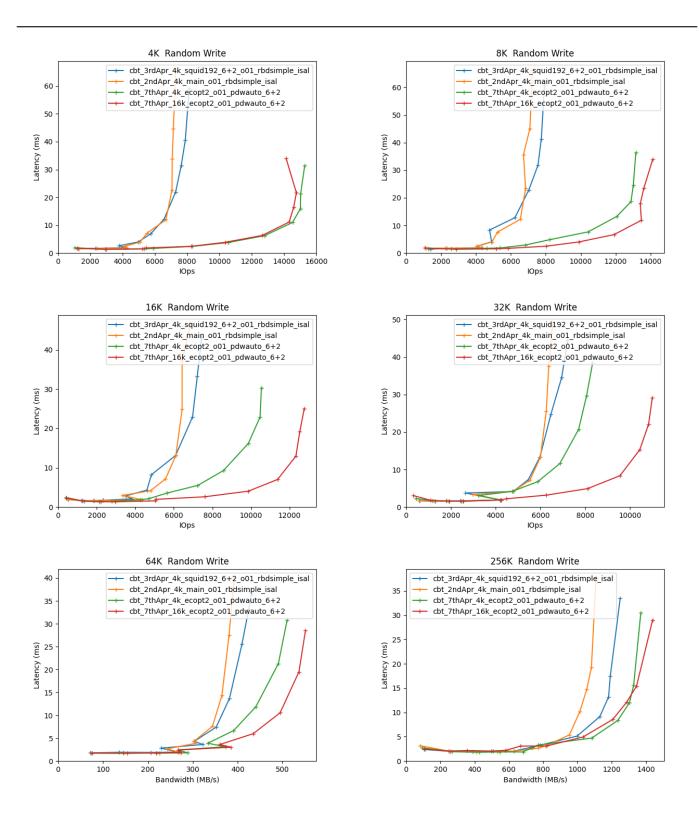


Response Curves Random Write

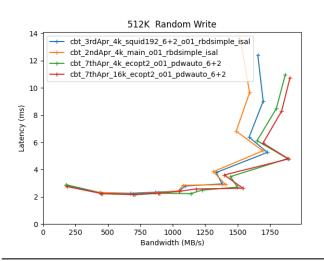


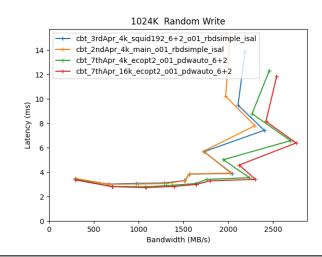
Random Write

Response Curves Random Write

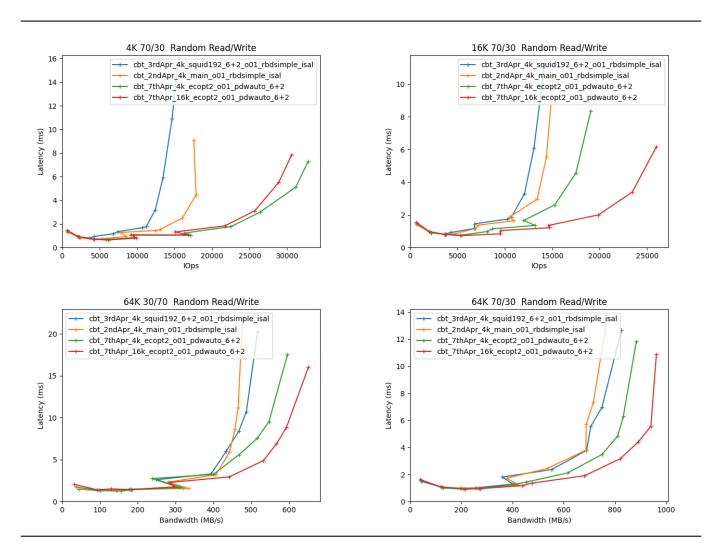


Response Curves Random Read/Write





Random Read/Write



Configuration yaml files

Only yaml files that differ by more than 20 lines from the yaml file for the baseline directory will be added here in addition to the baseline yaml

results

```
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
  time: 90
  time_based: true
  use_existing_volumes: true
  vol_size: 1368750
  volumes_per_client:
  - 16
  workloads:
    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
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:
  op_size: 1048576
  total_iodepth:
  - 1
```

- 2 - 3 - 6 - 8 - 10 - 12 - 14 - 16 - 20 1Mseqwrite: jobname: seqwrite mode: write numjobs: - 1 op_size: 1048576 total_iodepth: - 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 256krandomwrite: jobname: randwrite mode: randwrite numjobs: - 1 op_size: 262144 total_iodepth: - 1 - 2 - 3 - 4 - 5 - 8 - 16 - 32 - 64

- 96

- 128

- 256 32krandomread: jobname: randread mode: randread numjobs: - 1 op_size: 32768 total_iodepth: - 4 - 6 - 8 - 12 - 16 - 24 - 32 - 64 - 128 - 256 32krandomwrite: jobname: randwrite mode: randwrite numjobs: - 1 op_size: 32768 total_iodepth: - 1 - 2 - 3 - 4 - 8 - 16 - 32 - 64 - 128 - 256 - 384 - 512 4k7030: jobname: randmix mode: randrw numjobs: - 1 op_size: 4096 rwmixread: 70 total_iodepth: - 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
  - 588
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
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
  - 3
  - 4
  - 6
  - 8
  - 12
  - 16
  - 20
  - 24
  - 32
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
64krandomwrite:
  jobname: randwrite
  mode: randwrite
  numjobs:
  - 1
  op_size: 65536
  {\tt total\_iodepth:}
  - 2
  - 4
  - 6
  - 8
  - 16
  - 24
  - 32
  - 64
  - 128
  - 256
  - 384
64kseqread:
  jobname: read
  mode: read
  numjobs:
  - 1
  op_size: 65536
  {\tt total\_iodepth:}
  - 2
  - 4
  - 6
```

- 8 - 16 - 24 - 32 - 64 - 128 - 192 - 256 64kseqwrite: jobname: write mode: write numjobs: - 1 op_size: 65536 total_iodepth: - 8 - 12 - 16 - 32 - 48 - 64 - 128 - 256 - 384 - 512 8krandomread: jobname: randread mode: randread numjobs: - 1 op_size: 8192 total_iodepth: - 4 - 8 - 12 - 16 - 32 - 48 - 64 - 128 - 256 - 384 - 588 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
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
seq256kread:
  jobname: seqread
 mode: read
 numjobs:
  - 1
  op_size: 262144
  total_iodepth:
  - 1
  - 2
  - 3
  - 4
  - 5
  - 8
  - 16
  - 24
  - 32
  - 48
```

```
- 64
seq256kwrite:
  jobname: seqwrite
 mode: write
 numjobs:
  - 1
  op_size: 262144
  total_iodepth:
  - 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
seq32kwrite:
  jobname: seqwrite
 mode: write
 numjobs:
  - 1
  op_size: 32768
  total_iodepth:
  - 2
  - 4
  - 8
  - 16
  - 32
  - 64
  - 128
  - 256
 - 512
  - 768
seq4kread:
  jobname: seqread
 mode: read
 numjobs:
  - 1
 op_size: 4096
 total_iodepth:
  - 2
  - 4
```

```
- 8
  - 12
  - 16
  - 24
  - 32
  - 64
  - 96
  - 128
  - 192
  - 288
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
seq8kread:
  jobname: seqread
 mode: read
 numjobs:
  - 1
  op_size: 8192
  total_iodepth:
  - 2
  - 4
  - 8
  - 12
  - 16
  - 24
  - 32
  - 64
  - 96
  - 128
  - 192
  - 288
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
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
  - --- server1 ---
  osds_per_node: 6
  pdsh_ssh_args: -a -x -1%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}
  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
    time: 90
    time_based: true
    use_existing_volumes: true
    vol_size: 1368750
```

```
volumes_per_client:
workloads:
  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:
    - 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
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
  - 3
  - 4
 - 6
 - 8
 - 10
 - 12
  - 14
 - 16
 - 20
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: op_size: 262144 total_iodepth: - 1 - 2 - 3 - 4 - 5 - 8 - 16 - 24 - 32 - 64 - 128 256krandomwrite: jobname: randwrite mode: randwrite numjobs: - 1 op_size: 262144 total_iodepth: - 1 - 2 - 3 - 4 - 5 - 8 - 16 - 32 - 64 - 96 - 128 - 256 32 krandomread:jobname: randread mode: randread numjobs: - 1 op_size: 32768 total_iodepth: - 2 - 4 - 6 - 8 - 12 - 16 - 24 - 32 - 64 - 128 - 256 32krandomwrite: jobname: randwrite

mode: randwrite

```
numjobs:
  op_size: 32768
  total_iodepth:
  - 1
  - 2
  - 3
  - 4
  - 8
  - 16
  - 32
  - 64
  - 128
  - 256
  - 384
  - 512
4k7030:
  jobname: randmix
 mode: randrw
 numjobs:
  - 1
 op_size: 4096
 rwmixread: 70
  total_iodepth:
  - 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
  - 588
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 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 - 3 4 - 6 - 8 - 12 - 16 - 20

- 24

```
- 32
512kseqwrite:
  jobname: seqwrite
 mode: write
 numjobs:
  - 1
  op_size: 524288
  total_iodepth:
  - 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:
  - 4
  - 6
  - 8
  - 12
  - 16
  - 24
  - 32
  - 64
  - 128
  - 256
64krandomwrite:
  jobname: randwrite
  mode: randwrite
  numjobs:
  - 1
  op_size: 65536
  {\tt total\_iodepth:}
  - 2
  - 4
  - 6
  - 8
  - 16
  - 24
  - 32
  - 64
  - 128
  - 256
  - 384
64kseqread:
  jobname: read
  mode: read
  numjobs:
  - 1
  op_size: 65536
  total_iodepth:
  - 2
  - 4
  - 6
  - 8
  - 16
  - 24
  - 32
  - 64
  - 128
  - 192
  - 256
64kseqwrite:
  jobname: write
  mode: write
  numjobs:
  - 1
  op_size: 65536
  total_iodepth:
  - 8
  - 12
  - 16
  - 32
  - 48
  - 64
```

- 128

- 256 - 384 - 512 8krandomread: jobname: randread mode: randread numjobs: - 1 op_size: 8192 total_iodepth: - 8 - 12 - 16 - 32 - 48 - 64 - 128 - 256 - 384 - 588 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 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
  - 8
  - 16
  - 32
  - 48
  - 64
  - 128
  - 256
  - 384
  - 512
seq256kread:
  jobname: seqread
  mode: read
  numjobs:
  - 1
  op_size: 262144
  total_iodepth:
  - 1
  - 2
  - 3
  - 4
  - 5
  - 8
  - 16
  - 24
  - 32
  - 48
  - 64
{\tt 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
seq32kwrite:
  jobname: seqwrite
  mode: write
  numjobs:
  - 1
  op_size: 32768
  {\tt total\_iodepth:}
  - 2
  - 4
  - 8
  - 16
  - 32
  - 64
  - 128
  - 256
  - 512
  - 768
seq4kread:
  jobname: seqread
  mode: read
  numjobs:
  - 1
  op_size: 4096
  {\tt total\_iodepth:}
  - 4
  - 8
  - 12
  - 16
  - 24
  - 32
  - 64
  - 96
  - 128
  - 192
  - 288
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
      seq8kread:
        jobname: seqread
        mode: read
        numjobs:
        - 1
        op_size: 8192
        total_iodepth:
        - 2
        - 4
        - 8
        - 12
        - 16
        - 24
        - 32
        - 64
        - 96
        - 128
        - 192
        - 288
      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
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 ---:
```

Configuration yaml files results

```
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: 6
  pdsh_ssh_args: -a -x -1%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}
```