CSE2005L - Operating Systems Lab
Lab 5 - Sequential and Random I/O Test
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Faculty : Dr. Shyamala.L

Using dd command

```
pranavchendur@ubuntu:~$ dd if=/dev/zero of=speedtest bs=1M count=100
100+0 records in
100+0 records out
104857600 bytes (105 MB, 100 MiB) copied, 0.0513191 s, 2.0 GB/s
pranavchendur@ubuntu:~$ dd if=/dev/zero of=speedtest bs=1M count=100 conv=fdatasync
100+0 records in
100+0 records out
104857600 bytes (105 MB, 100 MiB) copied, 0.0915472 s, 1.1 GB/s
pranavchendur@ubuntu:~$ dd if=/dev/zero of=speedtest bs=64k count=3200 conv=fdatasync
3200+0 records in
3200+0 records out
209715200 bytes (210 MB, 200 MiB) copied, 0.351692 s, 596 MB/s
pranavchendur@ubuntu:~$ dd if=speedtest of=/dev/null bs=64k count=24000
3200+0 records in
3200+0 records out
209715200 bytes (210 MB, 200 MiB) copied, 0.0302544 s, 6.9 GB/s
```

```
pranavchendur@ubuntu:~$ sudo tune2fs -l /dev/sda1
[sudo] password for pranavchendur:
Sorry, try again.
[sudo] password for pranavchendur:
tune2fs 1.42.13 (17-May-2015)
Filesystem volume name:   <none>
Last mounted on:          /
Filesystem UUID:
4430cccb-9d3a-4c89-a274-4243e9c845aa
Filesystem magic number:  0xEF53
Filesystem revision #:    1 (dynamic)
Filesystem features:      has_journal ext_attr resize_inode
dir_index filetype needs_recovery extent flex_bg sparse_super
large_file huge_file uninit_bg dir_nlink extra_isize
Filesystem flags:         signed_directory_hash
Default mount options:    user_xattr acl
Filesystem state:         clean
Errors behavior:          Continue
```

```
Filesystem OS type:        Linux
Inode count:               1048576
Block count:               4194048
Reserved block count:      209702
Free blocks:               3179232
Free inodes:               861685
First block:               0
Block size:                4096
Fragment size:             4096
Reserved GDT blocks:       1023
Blocks per group:          32768
Fragments per group:       32768
Inodes per group:          8192
Inode blocks per group:    512
Flex block group size:     16
Filesystem created:        Thu Mar 23 11:15:01 2017
Last mount time:           Thu Mar 23 05:49:46 2017
Last write time:           Thu Mar 23 05:49:44 2017
Mount count:               2
Maximum mount count:       -1
Last checked:              Thu Mar 23 11:15:01 2017
Check interval:            0 (<none>)
Lifetime writes:           4965 MB
Reserved blocks uid:       0 (user root)
Reserved blocks gid:       0 (group root)
First inode:               11
Inode size:            256
Required extra isize:      28
Desired extra isize:       28
Journal inode:             8
First orphan inode:        658546
Default directory hash:    half_md4
Directory Hash Seed:
c223ba2d-ca03-481a-8c2a-192d44ef682c
Journal backup:            inode blocks
```
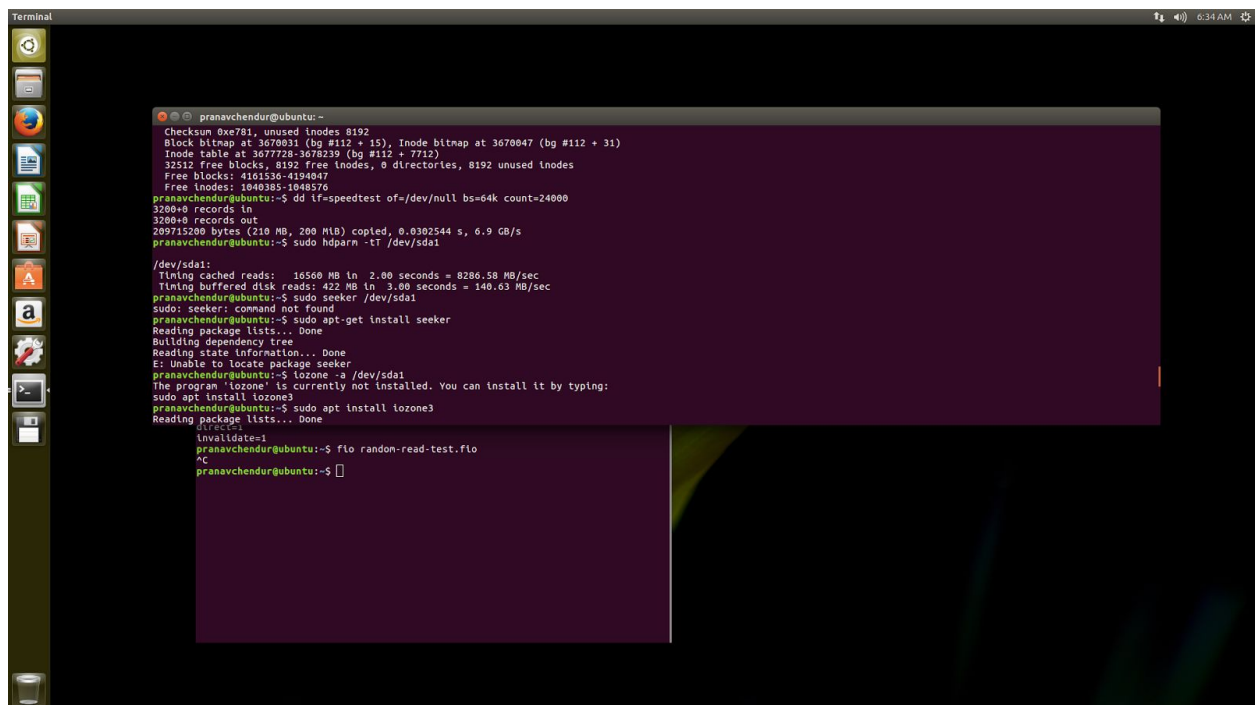
Using HDPARM

pranavchendur@ubuntu:~$ sudo hdparm -tT /dev/sda1

/dev/sda1:
 Timing cached reads: 16560 MB in 2.00 seconds = 8286.58 MB/sec
 Timing buffered disk reads: 422 MB in 3.00 seconds = 140.63 MB/sec

Read Write Benchmark Test using iozone
pranavchendur@ubuntu:~$ iozone -a /dev/sda1
       Iozone: Performance Test of File I/O
              Version $Revision: 3.429 $
           Compiled for 64 bit mode.
           Build: linux-AMD64

Contributors:William Norcott, Don Capps, Isom Crawford, Kirby Collins

Al Slater, Scott Rhine, Mike Wisner, Ken Goss

Steve Landherr, Brad Smith, Mark Kelly, Dr. Alain CYR,

Randy Dunlap, Mark Montague, Dan Million, Gavin Brebner,

Jean-Marc Zucconi, Jeff Blomberg, Benny Halevy, Dave Boone,

Erik Habbinga, Kris Strecker, Walter Wong, Joshua Root,

Fabrice Bacchella, Zhenghua Xue, Qin Li, Darren Sawyer,

Vangel Bojaxhi, Ben England, Vikentsi Lapa.

Run began: Thu Mar 23 06:20:41 2017

Auto Mode
Command line used: iozone -a /dev/sda1
Output is in kBytes/sec
Time Resolution = 0.000001 seconds.
Processor cache size set to 1024 kBytes.
Processor cache line size set to 32 bytes.
File stride size set to 17 * record size.

```
Preparing to unpack .../iozone3_429-3_amd64.deb ...
Unpacking iozone3 (429-3) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up iozone3 (429-3) ...
pranavchendur@ubuntu:~$ iozone -a /dev/sda1
        Iozone: Performance Test of File I/O
                Version $Revision: 3.429 $
                Compiled for 64 bit mode.
                Build: linux-AMD64

        Contributors:William Norcott, Don Capps, Isom Crawford, Kirby Collins
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        Auto Mode
        Command line used: iozone -a /dev/sda1
        Output is in kBytes/sec
        Time Resolution = 0.000001 seconds.
        Processor cache size set to 1024 kBytes.
        Processor cache line size set to 32 bytes.
        File stride size set to 17 * record size.
                                                  random  random    bkwd   record   stride
              kB  reclen    write  rewrite    read   reread    read   write    read  rewrite    read  fwrite frewrite   fread  freread
```

Using FIO for I/O Test

Test 1

```
pranavchendur@ubuntu:~$ cat io-test-1.fio
; -- start job file --
[random-writers]
rw=randrw
size=50m
numjobs=1
; -- end job file --
```

```
pranavchendur@ubuntu:~$ fio io-test-1.fio
random-writers: (g=0): rw=randrw, bs=4K-4K/4K-4K/4K-4K, ioengine=sync, iodepth=1
fio-2.2.10
Starting 1 process
random-writers: Laying out IO file(s) (1 file(s) / 50MB)
random-writers: (groupid=0, jobs=1): err= 0: pid=6539: Thu Mar 23 06:38:04 2017
  read : io=25660KB, bw=693476B/s, iops=169, runt= 37890msec
    clat (usec): min=218, max=88075, avg=5871.29, stdev=6134.10
     lat (usec): min=218, max=88075, avg=5871.75, stdev=6134.08
    clat percentiles (usec):
     |  1.00th=[  438],  5.00th=[  588], 10.00th=[  692], 20.00th=[  828],
     | 30.00th=[  916], 40.00th=[ 2832], 50.00th=[ 5216], 60.00th=[ 7008],
     | 70.00th=[ 8512], 80.00th=[ 9920], 90.00th=[11840], 95.00th=[13376],
```

```
        | 99.00th=[29568], 99.50th=[35072], 99.90th=[61184], 99.95th=[66048],
        | 99.99th=[88576]
     bw (KB  /s): min=  215, max= 1373, per=98.33%, avg=665.68, stdev=154.74
  write: io=25540KB, bw=690233B/s, iops=168, runt= 37890msec
    clat (usec): min=1, max=1392, avg=22.42, stdev=30.97
     lat (usec): min=1, max=1392, avg=22.99, stdev=31.23
    clat percentiles (usec):
        |  1.00th=[     2],  5.00th=[     3], 10.00th=[     4], 20.00th=[     6],
        | 30.00th=[     7], 40.00th=[     9], 50.00th=[    13], 60.00th=[    22],
        | 70.00th=[    27], 80.00th=[    33], 90.00th=[    47], 95.00th=[    67],
        | 99.00th=[   114], 99.50th=[   145], 99.90th=[   221], 99.95th=[   394],
        | 99.99th=[  1400]
     bw (KB  /s): min=  221, max= 1373, per=99.09%, avg=667.86, stdev=176.88
     lat (usec) : 2=0.09%, 4=4.47%, 10=17.13%, 20=7.12%, 50=16.57%
     lat (usec) : 100=3.65%, 250=0.92%, 500=0.98%, 750=5.52%, 1000=10.98%
     lat (msec) : 2=1.71%, 4=3.00%, 10=18.12%, 20=8.82%, 50=0.78%
     lat (msec) : 100=0.12%
  cpu          : usr=0.04%, sys=3.87%, ctx=7056, majf=0, minf=10
  IO depths    : 1=100.0%, 2=0.0%, 4=0.0%, 8=0.0%, 16=0.0%, 32=0.0%, >=64=0.0%
     submit    : 0=0.0%, 4=100.0%, 8=0.0%, 16=0.0%, 32=0.0%, 64=0.0%, >=64=0.0%
     complete  : 0=0.0%, 4=100.0%, 8=0.0%, 16=0.0%, 32=0.0%, 64=0.0%, >=64=0.0%
     issued    : total=r=6415/w=6385/d=0, short=r=0/w=0/d=0, drop=r=0/w=0/d=0
     latency   : target=0, window=0, percentile=100.00%, depth=1

Run status group 0 (all jobs):
   READ: io=25660KB, aggrb=677KB/s, minb=677KB/s, maxb=677KB/s, mint=37890msec, maxt=37890msec
  WRITE: io=25540KB, aggrb=674KB/s, minb=674KB/s, maxb=674KB/s, mint=37890msec, maxt=37890msec

Disk stats (read/write):
  sda: ios=6292/3063, merge=0/12, ticks=37308/104488, in_queue=141792, util=98.90%
```

Test 2

pranavchendur@ubuntu:~$ cat random-read-test.fio

; random read of 128mb of data

[random-read]

rw=randread

size=128m

directory=/home/


```
pranavchendur@ubuntu:~$ sudo fio random-read-test.fio
[sudo] password for pranavchendur:
random-read: (g=0): rw=randread, bs=4K-4K/4K-4K/4K-4K, ioengine=sync, iodepth=1
fio-2.2.10
Starting 1 process
random-read: Laying out IO file(s) (1 file(s) / 128MB)

random-read: (groupid=0, jobs=1): err= 0: pid=6593: Thu Mar 23 06:44:36 2017
  read : io=131072KB, bw=570847B/s, iops=139, runt=235120msec
    clat (usec): min=127, max=235469, avg=7165.86, stdev=6560.45
     lat (usec): min=127, max=235469, avg=7166.48, stdev=6560.47
    clat percentiles (usec):
     |  1.00th=[  454],  5.00th=[  628], 10.00th=[  796], 20.00th=[ 2448],
     | 30.00th=[ 4192], 40.00th=[ 5344], 50.00th=[ 6496], 60.00th=[ 7712],
     | 70.00th=[ 8896], 80.00th=[10048], 90.00th=[11328], 95.00th=[16064],
     | 99.00th=[33536], 99.50th=[37120], 99.90th=[61184], 99.95th=[71168],
     | 99.99th=[95744]
    bw (KB  /s): min=  119, max= 2506, per=99.39%, avg=553.59, stdev=178.40
    lat (usec) : 250=0.32%, 500=1.35%, 750=6.86%, 1000=9.56%
    lat (msec) : 2=1.61%, 4=9.05%, 10=51.14%, 20=16.66%, 50=3.24%
    lat (msec) : 100=0.20%, 250=0.01%
  cpu          : usr=0.02%, sys=2.61%, ctx=32795, majf=0, minf=10
  IO depths    : 1=100.0%, 2=0.0%, 4=0.0%, 8=0.0%, 16=0.0%, 32=0.0%, >=64=0.0%
     submit    : 0=0.0%, 4=100.0%, 8=0.0%, 16=0.0%, 32=0.0%, 64=0.0%, >=64=0.0%
     complete  : 0=0.0%, 4=100.0%, 8=0.0%, 16=0.0%, 32=0.0%, 64=0.0%, >=64=0.0%
     issued    : total=r=32768/w=0/d=0, short=r=0/w=0/d=0, drop=r=0/w=0/d=0
     latency   : target=0, window=0, percentile=100.00%, depth=1

Run status group 0 (all jobs):
   READ: io=131072KB, aggrb=557KB/s, minb=557KB/s, maxb=557KB/s,
mint=235120msec, maxt=235120msec

Disk stats (read/write):
  sda: ios=32765/157, merge=0/182, ticks=237944/136, in_queue=238080,
util=99.46%
```

```
r(1)] [56.6% done] [351KB/0KB/0KB /s] [87/0/0 iops] [eta 01m:48sJobs: 1 (f=1): [r(1)] [57.3% done] [562KB/0KB/0KB /s] [140/0/0 iops] [eta 01m:46s Jobs: 1 (f=1): [r(1)] [57.7% done] [558KB/0KB/0KB /s] [139/0
/0 iops] [eta 01m:45sJobs: 1 (f=1): [r(1)] [57.8% done] [455KB/0KB/0KB /s] [113/0/0 iops] [eta 01m:45sJobs: 1 (f=1): [r(1)] [58.2% done] [315KB/0KB/0KB /s] [78/0/0 iops] [eta 01m:44sJobs: 1 (f=1): [r(1)] [5
8.4% done] [175KB/0KB/0KB /s] [43/0/0 iops] [eta 01m:44sJobs: 1 (f=1): [r(1)] [58.3% done] [151KB/0KB/0KB /s] [37/0/0 iops] [eta 01m:45sJobs: 1 (f=1): [r(1)] [58.7% done] [495KB/0KB/0KB /s] [123/0/0 iops]
[eta 01m:44sJobs: 1 (f=1): [r(1)] [59.4% done] [610KB/0KB/0KB /s] [152/0/0 iops] [eta 01m:42sJobs: 1 (f=1): [r(1)] [59.5% done] [471KB/0KB/0KB /s] [117/0/0 iops] [eta 01m:42s Jobs: 1 (f=1): [r(1)] [60.2% don
e] [547KB/0KB/0KB /s] [136/0/0 iops] [eta 01m:40sJobs: 1 (f=1): [r(1)] [60.6% done] [627KB/0KB/0KB /s] [156/0/0 iops] [eta 01m:39sJobs: 1 (f=1): [r(1)] [61.0% done] [586KB/0KB/0KB /s] [146/0/0 iops] [eta 01
m:38sJobs: 1 (f=1): [r(1)] [61.4% done] [562KB/0KB/0KB /s] [140/0/0 iops] [eta 01m:37sJobs: 1 (f=1): [r(1)] [61.8% done] [567KB/0KB/0KB /s] [141/0/0 iops] [eta 01m:36sJobs: 1 (f=1): [r(1)] [62.4% done] [574K
B/0KB/0KB /s] [143/0/0 iops] [eta 01m:34sJobs: 1 (f=1): [r(1)] [62.8% done] [558KB/0KB/0KB /s] [139/0/0 iops] [eta 01m:33sJobs: 1 (f=1): [r(1)] [62.9% done] [431KB/0KB/0KB /s] [107/0/0 iops] [eta 01m:33Jobs
: 1 (f=1): [r(1)] [63.3% done] [343KB/0KB/0KB /s] [85/0/0 iops] [eta 01m:32sJobs: 1 (f=1): [r(1)] [63.7% done] [562KB/0KB/0KB /s] [140/0/0 iops] [eta 01m:31sJobs: 1 (f=1): [r(1)] [64.1% done] [387KB/0KB/0K
B /s] [96/0/0 iops] [eta 01m:30sJobs: 1 (f=1): [r(1)] [64.5% done] [558KB/0KB/0KB /s] [139/0/0 iops] [eta 01m:29sJobs: 1 (f=1): [r(1)] [64.9% done] [538KB/0KB/0KB /s] [134/0/0 iops] [eta 01m:28Jobs: 1 (f=1
): [r(1)] [65.3% done] [499KB/0KB/0KB /s] [124/0/0 iops] [eta 01m:27sJobs: 1 (f=1): [r(1)] [65.5% done] [339KB/0KB/0KB /s] [84/0/0 iops] [eta 01m:27sJobs: 1 (f=1): [r(1)] [65.9% done] [571KB/0KB/0KB /s] [1
42/0/0 iops] [eta 01m:26Jobs: 1 (f=1): [r(1)] [66.3% done] [502KB/0KB/0KB /s] [125/0/0 iops] [eta 01m:25sJobs: 1 (f=1): [r(1)] [66.7% done] [558KB/0KB/0KB /s] [139/0/0 iops] [eta 01m:24sJobs: 1 (f=1): [r(1)
] [67.3% done] [654KB/0KB/0KB /s] [163/0/0 iops] [eta 01m:22sJobs: 1 (f=1): [r(1)] [67.7% done] [522KB/0KB/0KB /s] [130/0/0 iops] [eta 01m:21sJobs: 1 (f=1): [r(1)] [68.1% done] [534KB/0KB/0KB /s] [133/0/0 i
ops] [eta 01m:20Jobs: 1 (f=1): [r(1)] [68.5% done] [554KB/0KB/0KB /s] [138/0/0 iops] [eta 01m:19Jobs: 1 (f=1): [r(1)] [68.9% done] [510KB/0KB/0KB /s] [127/0/0 iops] [eta 01m:18Jobs: 1 (f=1): [r(1)] [69.3%
done] [574KB/0KB/0KB /s] [143/0/0 iops] [eta 01m:17Jobs: 1 (f=1): [r(1)] [69.7% done] [443KB/0KB/0KB /s] [110/0/0 iops] [eta 01m:16Jobs: 1 (f=1): [r(1)] [70.1% done] [526KB/0KB/0KB /s] [131/0/0 iops] [et
a 01m:15Jobs: 1 (f=1): [r(1)] [70.5% done] [594KB/0KB/0KB /s] [148/0/0 iops] [eta 01m:14Jobs: 1 (f=1): [r(1)] [70.9% done] [526KB/0KB/0KB /s] [131/0/0 iops] [eta 01m:13Jobs: 1 (f=1): [r(1)] [71.3% done] [
522KB/0KB/0KB /s] [130/0/0 iops] [eta 01m:12Jobs: 1 (f=1): [r(1)] [71.7% done] [518KB/0KB/0KB /s] [129/0/0 iops] [eta 01m:11Jobs: 1 (f=1): [r(1)] [72.1% done] [551KB/0KB/0KB /s] [137/0/0 iops] [eta 01m:10
Jobs: 1 (f=1): [r(1)] [72.5% done] [614KB/0KB/0KB /s] [153/0/0 iops] [eta 01m:09Jobs: 1 (f=1): [r(1)] [73.2% done] [587KB/0KB/0KB /s] [146/0/0 iops] [eta 01m:07Jobs: 1 (f=1): [r(1)] [73.6% done] [547KB/0K
B/0KB /s] [136/0/0 iops] [eta 01m:06Jobs: 1 (f=1): [r(1)] [73.7% done] [355KB/0KB/0KB /s] [88/0/0 iops] [eta 01m:06Jobs: 1 (f=1): [r(1)] [74.1% done] [571KB/0KB/0KB /s] [142/0/0 iops] [eta 01m:05Jobs: 1
(f=1): [r(1)] [74.8% done] [630KB/0KB/0KB /s] [157/0/0 iops] [eta 01m:03Jobs: 1 (f=1): [r(1)] [75.2% done] [615KB/0KB/0KB /s] [153/0/0 iops] [eta 01m:02Jobs: 1 (f=1): [r(1)] [75.6% done] [586KB/0KB/0KB /s
] [146/0/0 iops] [eta 01m:01Jobs: 1 (f=1): [r(1)] [76.0% done] [566KB/0KB/0KB /s] [141/0/0 iops] [eta 01m:00Jobs: 1 (f=1): [r(1)] [76.4% done] [583KB/0KB/0KB /s] [145/0/0 iops] [eta 00m:59Jobs: 1 (f=1): [
r(1)] [77.1% done] [606KB/0KB/0KB /s] [151/0/0 iops] [eta 00m:57Jobs: 1 (f=1): [r(1)] [77.5% done] [590KB/0KB/0KB /s] [147/0/0 iops] [eta 00m:56Jobs: 1 (f=1): [r(1)] [77.9% done] [542KB/0KB/0KB /s] [135/0
/0 iops] [eta 00m:55Jobs: 1 (f=1): [r(1)] [78.0% done] [287KB/0KB/0KB /s] [71/0/0 iops] [eta 00m:55sJobs: 1 (f=1): [r(1)] [78.4% done] [403KB/0KB/0KB /s] [100/0/0 iops] [eta 00m:54Jobs: 1 (f=1): [r(1)] [7
8.8% done] [638KB/0KB/0KB /s] [159/0/0 iops] [eta 00m:53Jobs: 1 (f=1): [r(1)] [79.2% done] [582KB/0KB/0KB /s] [145/0/0 iops] [eta 00m:52Jobs: 1 (f=1): [r(1)] [79.6% done] [594KB/0KB/0KB /s] [148/0/0 iops]
[eta 00m:51Jobs: 1 (f=1): [r(1)] [80.3% done] [642KB/0KB/0KB /s] [160/0/0 iops] [eta 00m:49Jobs: 1 (f=1): [r(1)] [80.7% done] [427KB/0KB/0KB /s] [106/0/0 iops] [eta 00m:48Jobs: 1 (f=1): [r(1)] [81.1% don
Jobs: 1 (f=1): [r(1)] [83.1% done] [519KB/0KB/0KJobs: 1 (f=1): [r(1)] [83.5% done] [567KB/0KB/0KB /s] [141/0/0 iops] [eta 00m:41Jobs: 1 (f=1): [r(1)] [83.9% done] [606KB/0KB/0KB /s] [151/0/0 iops] [eta 00
m:40Jobs: 1 (f=1): [r(1)] [84.7% done] [586KB/0KB/0KB /s] [146/0/0 iops] [eta Jobs: 1 (f=1): [r(1)] [85.1% done] [547KB/0KB/0KB /s] [136/0/0 iops] [eta 00m:37sJobs: 1 (f=1): [r(1)] [85.9% done] [515K
B/0KB/0KB /s] [128/0/0 iops] [eta 00m:35Jobs: 1 (f=1): [r(1)] [86.3% done] [590KB/0KB/0KB /s] [147/0/0 iops] [eta 00m:34Jobs: 1 (f=1): [r(1)] [86.7% done] [622KB/0KB/0KB /s] [155/0/0 iops] [eta 00m:33Jobs
: 1 (f=1): [r(1)] [87.1% done] [530KB/0KB/0KB /s] [132/0/0 iops] [eta 00m:32Jobs: 1 (f=1): [r(1)] [87.5% done] [682KB/0KB/0KB /s] [170/0/0 iops] [eta 00m:31Jobs: 1 (f=1): [r(1)] [87.9% done] [586KB/0KB/0K
B /s] [146/0/0 iops] [eta 00m:30Jobs: 1 (f=1): [r(1)] [88.7% done] [654KB/0KB/0KB /s] [163/0/0 iops] [eta 00m:28Jobs: 1 (f=1): [r(1)] [89.1% done] [435KB/0KB/0KB /s] [108/0/0 iops] [eta 00m:27Jobs: 1 (f=1
): [r(1)] [89.1% done] [303KB/0KB/0KB /s] [75/0/0 iops] [eta 00m:27sJobs: 1 (f=1): [r(1)] [89.5% done] [411KB/0KB/0KB /s] [102/0/0 iops] [eta 00m:26Jobs: 1 (f=1): [r(1)] [89.9% done] [682KB/0KB/0KB /s] [1
70/0/0 iops] [eta 00m:25Jobs: 1 (f=1): [r(1)] [90.3% done] [674KB/0KB/0KB /s] [168/0/0 iops] [eta 00m:24Jobs: 1 (f=1): [r(1)] [91.1% done] [638KB/0KB/0KB /s] [159/0/0 iops] [eta 00m:22Jobs: 1 (f=1): [r(1)
] [91.5% done] [626KB/0KB/0KB /s] [156/0/0 iops] [eta 00m:21Jobs: 1 (f=1): [r(1)] [91.9% done] [702KB/0KB/0KB /s] [175/0/0 iops] [eta 00m:20Jobs: 1 (f=1): [r(1)] [92.7% done] [774KB/0KB/0KB /s] [193/0/0 l
ops] [eta 00m:18Jobs: 1 (f=1): [r(1)] [93.1% done] [777KB/0KB/0KB /s] [194/0/0 iops] [eta 00m:17Jobs: 1 (f=1): [r(1)] [93.9% done] [999KB/0KB/0KB /s] [249/0/0 iops] [eta 00m:15Jobs: 1 (f=1): [r(1)] [94.7%
done] [979KB/0KB/0KB /s] [244/0/0 iops] [eta 00m:13Jobs: 1 (f=1): [r(1)] [95.5% done] [831KB/0KB/0KB /s] [207/0/0 iops] [eta 00m:11Jobs: 1 (f=1): [r(1)] [95.9% done] [958KB/0KB/0KB /s] [239/0/0 iops] [et
a 00m:10Jobs: 1 (f=1): [r(1)] [97.1% done] [1398KB/0KB/0KB /s] [349/0/0 iops] [eta 00m:0Jobs: 1 (f=1): [r(1)] [98.7% done] [1854KB/0KB/0KB /s] [463/0/0 iops] [eta 00m:03s]
random-read: (groupid=0, jobs=1): err= 0: pid=6593: Thu Mar 23 06:44:36 2017
  read : io=131072KB, bw=570847B/s, iops=139, runt=235120msec
    clat (usec): min=127, max=235469, avg=7165.86, stdev=6560.45
     lat (usec): min=127, max=235469, avg=7166.48, stdev=6560.47
    clat percentiles (usec):
     |  1.00th=[  454],  5.00th=[  628], 10.00th=[  796], 20.00th=[ 2448],
     | 30.00th=[ 4192], 40.00th=[ 5344], 50.00th=[ 6496], 60.00th=[ 7712],
     | 70.00th=[ 8896], 80.00th=[10048], 90.00th=[11328], 95.00th=[16064],
     | 99.00th=[33536], 99.50th=[37120], 99.90th=[61184], 99.95th=[71168],
     | 99.99th=[95744]
    bw (KB  /s): min=  119, max= 2506, per=99.39%, avg=553.59, stdev=178.40
    lat (usec): 250=0.32%, 500=1.35%, 750=6.86%, 1000=9.56%
    lat (msec): 2=1.61%, 4=9.05%, 10=51.14%, 20=16.66%, 50=3.24%
    lat (msec): 100=0.20%, 250=0.01%
  cpu          : usr=0.02%, sys=2.61%, ctx=32795, majf=0, minf=10
  IO depths    : 1=100.0%, 2=0.0%, 4=0.0%, 8=0.0%, 16=0.0%, 32=0.0%, >=64=0.0%
     submit    : 0=0.0%, 4=100.0%, 8=0.0%, 16=0.0%, 32=0.0%, 64=0.0%, >=64=0.0%
     complete  : 0=0.0%, 4=100.0%, 8=0.0%, 16=0.0%, 32=0.0%, 64=0.0%, >=64=0.0%
     issued    : total=r=32768/w=0/d=0, short=r=0/w=0/d=0, drop=r=0/w=0/d=0
     latency   : target=0, window=0, percentile=100.00%, depth=1

Run status group 0 (all jobs):
   READ: io=131072KB, aggrb=557KB/s, minb=557KB/s, maxb=557KB/s, mint=235120msec, maxt=235120msec

Disk stats (read/write):
  sda: ios=32765/157, merge=0/182, ticks=237944/136, in_queue=238080, util=99.46%
pranavchendur@ubuntu:~$
```