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Optional Assignment 2

Steps followed to run the benchmarks:

The following commands were executed on the terminal to run the benchmarks:

```
iiitd:~/Desktop/assign2$ cd /mnt
iiitd:/mnt$ ./install.sh
iiitd:~/Desktop$ source shrc
iiitd:~/Desktop$ cd config/
iiitd:~/Desktop/config$ cp Example-gcc-linux-x86.cfg trypehla.cfg
iiitd:~/Desktop/config$ subl trypehla.cfg
iiitd:~/Desktop/config$ which gcc
/usr/bin/gcc
iiitd:~/Desktop/config$ runcpu --config=trypehla.cfg intrate

 runcpu --config=trypehla.cfg intrate
SPEC CPU(r) 2017 Benchmark Suites
Copyright 1995-2017 Standard Performance Evaluation Corporation (SPEC)

runcpu v5825
Using 'linux-x86_64' tools
Reading file manifests... read 32272 entries from 2 files in 0.10s (335590 files/s)
Loading runcpu modules.....................
Locating benchmarks...found 47 benchmarks in 53 benchsets.
Reading config file '/home/iiitd/Desktop/config/trypehla.cfg'
1 configuration selected:

 Action    Run Mode   Workload     Report Type      Benchmarks
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validate   rate       refrate    SPECrate2017_int   intrate
-------------------------------------------------------------------------------

Setting up environment for running intrate...
Starting runcpu for intrate...
Running "specperl /home/iiitd/Desktop/bin/sysinfo" to gather system information.
```

sysinfo: r5974 of 2018-05-19 (9bcde8f2999c33d61f64985e45859ea9)
sysinfo: Getting system information for Linux...
sysinfo: ...getting CPU info
sysinfo: ...getting info from numactl
sysinfo: ...getting memory info
sysinfo: ...getting OS info
sysinfo: ...getting CPU vulnerability status from the kernel
sysinfo: ...getting disk info
sysinfo: ...trying to get DIMM info from dmidecode
Retrieving flags file (/home/iiitd/Desktop/config/flags/gcc.xml)...
Benchmarks selected: 500.perlbench_r, 502.gcc_r, 505.mcf_r, 520.omnetpp_r, 523.xalancbmk_r, 525.x264_r, 531.deepsjeng_r, 541.leela_r, 548.exchange2_r, 557.xz_r, 999.specrand_ir
Compiling Binaries
  Building 500.perlbench_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 12:35:13]
  Building 502.gcc_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 12:35:37]
  Building 505.mcf_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 12:37:10]
  Building 520.omnetpp_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 12:37:12]
  Building 523.xalancbmk_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 12:37:44]
  Building 525.x264_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 12:39:02]
  Building 531.deepsjeng_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 12:39:16]
  Building 541.leela_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 12:39:19]
  Building 548.exchange2_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 12:39:24]
  Building 557.xz_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 12:39:29]
  Building 999.specrand_ir base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 12:39:33]

Build successes for intrate: 500.perlbench_r(base), 502.gcc_r(base), 505.mcf_r(base), 520.omnetpp_r(base), 523.xalancbmk_r(base), 525.x264_r(base), 531.deepsjeng_r(base), 541.leela_r(base), 548.exchange2_r(base), 557.xz_r(base), 999.specrand_ir(base)
Build errors for intrate: None

Setting Up Run Directories
  Setting up 500.perlbench_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 502.gcc_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 505.mcf_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 520.omnetpp_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 523.xalancbmk_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 525.x264_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 531.deepsjeng_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 541.leela_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 548.exchange2_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 557.xz_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 999.specrand_ir refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
Running Benchmarks
  Running 500.perlbench_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 12:40:04]
  Running 502.gcc_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 12:45:22]
  Running 505.mcf_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 12:49:18]
  Running 520.omnetpp_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 12:54:50]
  Running 523.xalancbmk_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 13:01:31]

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  Running 525.x264_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 13:06:34]
  Running 531.deepsjeng_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 13:13:00]
  Running 541.leela_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 13:17:52]
  Running 548.exchange2_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 13:25:40]
  Running 557.xz_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 13:30:07]
  Running 999.specrand_ir refrate (ref) base mytest-m64 (1 copy) [2020-02-27 13:36:06]
Success: 1x500.perlbench_r 1x502.gcc_r 1x505.mcf_r 1x520.omnetpp_r 1x523.xalancbmk_r
1x525.x264_r 1x531.deepsjeng_r 1x541.leela_r 1x548.exchange2_r 1x557.xz_r 1x999.specrand_ir
Producing Raw Reports
 label: mytest-m64
  workload: refrate (ref)
   metric: SPECrate2017_int_base
    format: raw -> /home/iiitd/Desktop/result/CPU2017.001.intrate.refrate.rsf
Parsing flags for 500.perlbench_r base: done
Parsing flags for 502.gcc_r base: done
Parsing flags for 505.mcf_r base: done
Parsing flags for 520.omnetpp_r base: done
Parsing flags for 523.xalancbmk_r base: done
Parsing flags for 525.x264_r base: done
Parsing flags for 531.deepsjeng_r base: done
Parsing flags for 541.leela_r base: done
Parsing flags for 548.exchange2_r base: done
Parsing flags for 557.xz_r base: done
Doing flag reduction: done
    format: flags -> /home/iiitd/Desktop/result/CPU2017.001.intrate.refrate.flags.html
    format: cfg -> /home/iiitd/Desktop/result/CPU2017.001.intrate.refrate.cfg,
/home/iiitd/Desktop/result/CPU2017.001.intrate.refrate.orig.cfg
    format: CSV -> /home/iiitd/Desktop/result/CPU2017.001.intrate.refrate.csv
    format: PDF -> /home/iiitd/Desktop/result/CPU2017.001.intrate.refrate.pdf
    format: HTML -> /home/iiitd/Desktop/result/CPU2017.001.intrate.refrate.html,
/home/iiitd/Desktop/result/invalid.gif
    format: Text -> /home/iiitd/Desktop/result/CPU2017.001.intrate.refrate.txt
The log for this run is in /home/iiitd/Desktop/result/CPU2017.001.log

runcpu finished at 2020-02-27 13:36:15; 3663 total seconds elapsed
iiitd:~/Desktop/config$ runcpu --config=trypehla.cfg fprate
SPEC CPU(r) 2017 Benchmark Suites
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runcpu v5825
Using 'linux-x86_64' tools
Reading file manifests... read 32272 entries from 2 files in 0.10s (337375 files/s)
Loading runcpu modules.....................
Locating benchmarks...found 47 benchmarks in 53 benchsets.
Reading config file '/home/iiitd/Desktop/config/trypehla.cfg'
1 configuration selected:

 Action    Run Mode   Workload     Report Type     Benchmarks
```

```
--------  --------  --------  ---------------  --------------------------
validate   rate       refrate    SPECrate2017_fp   fprate
-------------------------------------------------------------------------------

Setting up environment for running fprate...
Starting runcpu for fprate...
Running "specperl /home/iiitd/Desktop/bin/sysinfo" to gather system information.
sysinfo: r5974 of 2018-05-19 (9bcde8f2999c33d61f64985e45859ea9)
sysinfo: Getting system information for Linux...
sysinfo: ...getting CPU info
sysinfo: ...getting info from numactl
sysinfo: ...getting memory info
sysinfo: ...getting OS info
sysinfo: ...getting CPU vulnerability status from the kernel
sysinfo: ...getting disk info
sysinfo: ...trying to get DIMM info from dmidecode
Retrieving flags file (/home/iiitd/Desktop/config/flags/gcc.xml)...
Benchmarks selected: 503.bwaves_r, 507.cactuBSSN_r, 508.namd_r, 510.parest_r, 511.povray_r,
519.lbm_r, 521.wrf_r, 526.blender_r, 527.cam4_r, 538.imagick_r, 544.nab_r, 549.fotonik3d_r,
554.roms_r, 997.specrand_fr
Compiling Binaries
  Building 503.bwaves_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:38:58]
  Building 507.cactuBSSN_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:39:01]
  Building 508.namd_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:39:44]
  Building 510.parest_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:39:54]
  Building 511.povray_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:42:08]
  Building 519.lbm_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:42:20]
  Building 521.wrf_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:42:21]
  Building 526.blender_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:52:28]
  Building 527.cam4_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:54:04]
  Building 538.imagick_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:55:12]
  Building 544.nab_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:55:39]
  Building 549.fotonik3d_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:55:42]
  Building 554.roms_r base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:55:49]
  Building 997.specrand_fr base mytest-m64: (build_base_mytest-m64.0000) [2020-02-27 13:56:01]

Build successes for fprate: 503.bwaves_r(base), 507.cactuBSSN_r(base), 508.namd_r(base),
510.parest_r(base), 511.povray_r(base), 519.lbm_r(base), 521.wrf_r(base), 526.blender_r(base),
527.cam4_r(base), 538.imagick_r(base), 544.nab_r(base), 549.fotonik3d_r(base), 554.roms_r(base),
997.specrand_fr(base)
Build errors for fprate: None

Setting Up Run Directories
  Setting up 503.bwaves_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 507.cactuBSSN_r refrate (ref) base mytest-m64 (1 copy):
run_base_refrate_mytest-m64.0000
  Setting up 508.namd_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 510.parest_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
```

```
  Setting up 511.povray_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 519.lbm_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 521.wrf_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 526.blender_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 527.cam4_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 538.imagick_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 544.nab_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 549.fotonik3d_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 554.roms_r refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
  Setting up 997.specrand_fr refrate (ref) base mytest-m64 (1 copy): run_base_refrate_mytest-m64.0000
Running Benchmarks
  Running 503.bwaves_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 13:56:21]
  Running 507.cactuBSSN_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 14:07:40]
  Running 508.namd_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 14:11:24]
  Running 510.parest_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 14:14:42]
  Running 511.povray_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 14:22:41]
  Running 519.lbm_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 14:28:42]
  Running 521.wrf_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 14:32:39]
  Running 526.blender_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 14:42:20]
  Running 527.cam4_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 14:47:07]
  Running 538.imagick_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 14:53:10]
  Running 544.nab_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 15:00:29]
  Running 549.fotonik3d_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 15:06:30]
  Running 554.roms_r refrate (ref) base mytest-m64 (1 copy) [2020-02-27 15:14:32]
  Running 997.specrand_fr refrate (ref) base mytest-m64 (1 copy) [2020-02-27 15:20:12]
Success: 1x503.bwaves_r 1x507.cactuBSSN_r 1x508.namd_r 1x510.parest_r 1x511.povray_r
1x519.lbm_r 1x521.wrf_r 1x526.blender_r 1x527.cam4_r 1x538.imagick_r 1x544.nab_r 1x549.fotonik3d_r
1x554.roms_r 1x997.specrand_fr
Producing Raw Reports
 label: mytest-m64
  workload: refrate (ref)
   metric: SPECrate2017_fp_base
    format: raw -> /home/iiitd/Desktop/result/CPU2017.002.fprate.refrate.rsf
Parsing flags for 503.bwaves_r base: done
Parsing flags for 507.cactuBSSN_r base: done
Parsing flags for 508.namd_r base: done
Parsing flags for 510.parest_r base: done
Parsing flags for 511.povray_r base: done
Parsing flags for 519.lbm_r base: done
Parsing flags for 521.wrf_r base: done
Parsing flags for 526.blender_r base: done
Parsing flags for 527.cam4_r base: done
Parsing flags for 538.imagick_r base: done
Parsing flags for 544.nab_r base: done
Parsing flags for 549.fotonik3d_r base: done
Parsing flags for 554.roms_r base: done
Doing flag reduction: done
    format: flags -> /home/iiitd/Desktop/result/CPU2017.002.fprate.refrate.flags.html
```

```
   format: cfg -> /home/iiitd/Desktop/result/CPU2017.002.fprate.refrate.cfg,
/home/iiitd/Desktop/result/CPU2017.002.fprate.refrate.orig.cfg
   format: CSV -> /home/iiitd/Desktop/result/CPU2017.002.fprate.refrate.csv
   format: PDF -> /home/iiitd/Desktop/result/CPU2017.002.fprate.refrate.pdf
   format: HTML -> /home/iiitd/Desktop/result/CPU2017.002.fprate.refrate.html
   format: Text -> /home/iiitd/Desktop/result/CPU2017.002.fprate.refrate.txt
The log for this run is in /home/iiitd/Desktop/result/CPU2017.002.log

runcpu finished at 2020-02-27 15:20:33; 6097 total seconds elapsed
iiitd:~/Desktop/config$
```

Similar series of commands were executed for the fprate and the intrate of clang compilers.

Table for times of SPECrate Integer suit for both gcc and clang:

PDFs of the results are attached in the zip file.

Table for times of SPECrate Floating Points suit for both gcc and clang:

PDFs of the results are attached in the zip file.

END