



SPEC[®] CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R740 (Intel Xeon Platinum 8180, 2.50 GHz)

SPECrate2017_fp_base = 249

SPECrate2017_fp_peak = Not Run

CPU2017 License: 55

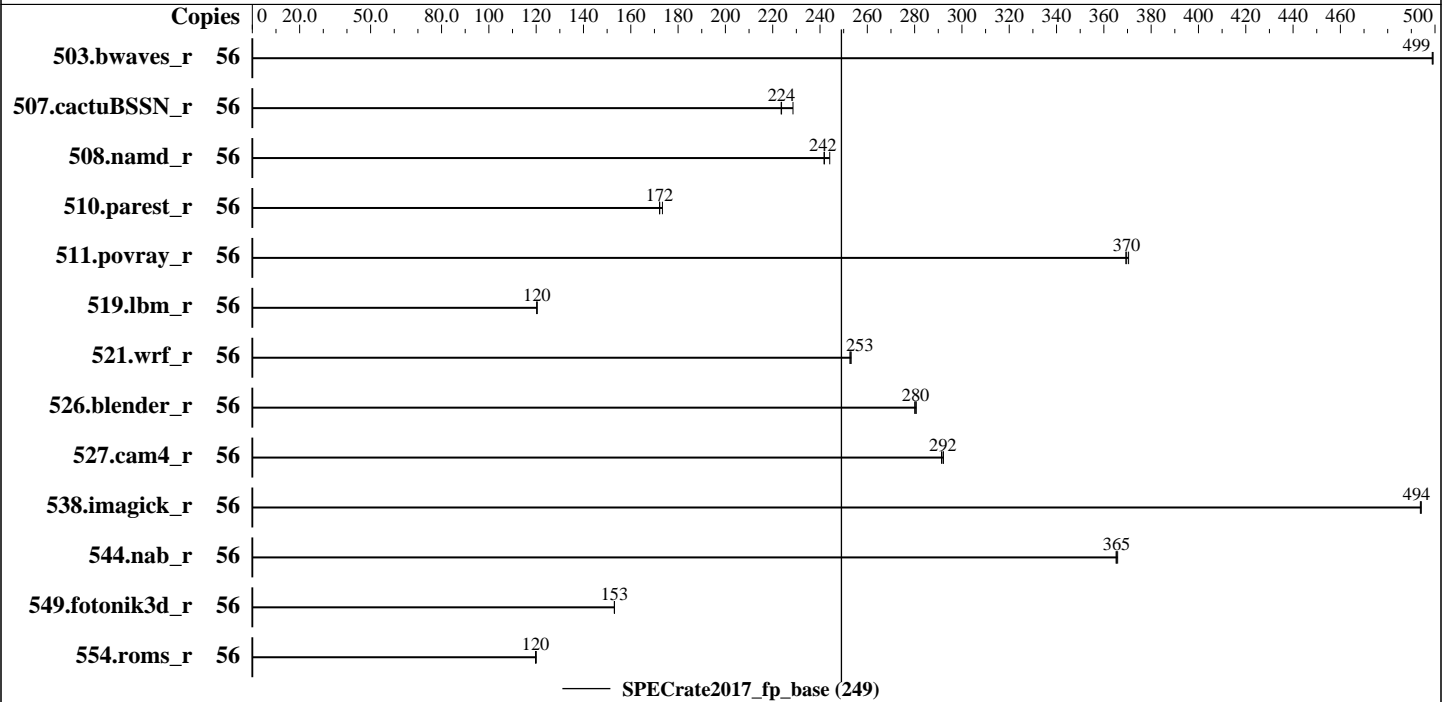
Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Oct-2017

Hardware Availability: Jul-2017

Software Availability: Sep-2017



Hardware

CPU Name: Intel Xeon Platinum 8180
 Max MHz.: 3800
 Nominal: 2500
 Enabled: 56 cores, 2 chips
 Orderable: 1,2 chips
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 38.5 MB I+D on chip per chip
 Other: None
 Memory: 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)
 Storage: 1 x 960 GB SATA SSD
 Other: None

Software

OS: SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default
 Compiler: C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux;
 Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux
 Parallel: No
 Firmware: Version 1.1.7 released Aug-2017
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 Other: None



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R740 (Intel Xeon Platinum 8180, 2.50 GHz)

SPECrate2017_fp_base = 249

SPECrate2017_fp_peak = Not Run

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Oct-2017
Hardware Availability: Jul-2017
Software Availability: Sep-2017

Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|-----------------|--------|-------------|------------|------------|------------|-------------|------------|--------|---------|-------|---------|-------|---------|-------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 503.bwaves_r | 56 | 1126 | 499 | 1125 | 499 | 1125 | 499 | | | | | | | |
| 507.cactuBSSN_r | 56 | 317 | 224 | 317 | 224 | 310 | 229 | | | | | | | |
| 508.namd_r | 56 | 220 | 242 | 218 | 244 | 220 | 242 | | | | | | | |
| 510.parest_r | 56 | 845 | 173 | 851 | 172 | 851 | 172 | | | | | | | |
| 511.povray_r | 56 | 353 | 370 | 354 | 369 | 354 | 370 | | | | | | | |
| 519.lbm_r | 56 | 490 | 120 | 491 | 120 | 490 | 120 | | | | | | | |
| 521.wrf_r | 56 | 495 | 253 | 496 | 253 | 496 | 253 | | | | | | | |
| 526.blender_r | 56 | 304 | 280 | 305 | 280 | 304 | 281 | | | | | | | |
| 527.cam4_r | 56 | 335 | 292 | 335 | 292 | 336 | 291 | | | | | | | |
| 538.imagick_r | 56 | 282 | 494 | 282 | 494 | 282 | 494 | | | | | | | |
| 544.nab_r | 56 | 258 | 365 | 258 | 366 | 258 | 365 | | | | | | | |
| 549.fotonik3d_r | 56 | 1425 | 153 | 1425 | 153 | 1426 | 153 | | | | | | | |
| 554.roms_r | 56 | 741 | 120 | 743 | 120 | 743 | 120 | | | | | | | |

SPECrate2017_fp_base = 249

SPECrate2017_fp_peak = Not Run

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

General Notes

Environment variables set by runcpu before the start of the run:

```
LD_LIBRARY_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"
```

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.4

Transparent Huge Pages enabled by default

Prior to runcpu invocation

Filesystem page cache synced and cleared with:

```
sync; echo 3> /proc/sys/vm/drop_caches
```

runcpu command invoked through numactl i.e.:

```
numactl --interleave=all runcpu <etc>
```



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R740 (Intel Xeon Platinum 8180, 2.50 GHz)

SPECrate2017_fp_base = 249

SPECrate2017_fp_peak = Not Run

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Oct-2017

Hardware Availability: Jul-2017

Software Availability: Sep-2017

Platform Notes

BIOS settings:

Sub NUMA Cluster disabled

Virtualization Technology disabled

System Profile set to Custom

CPU Performance set to Maximum Performance

C States set to Autonomous

C1E disabled

Uncore Frequency set to Dynamic

Energy Efficiency Policy set to Performance

Memory Patrol Scrub disabled

Logical Processor disabled

CPU Interconnect Bus Link Power Management disabled

PCI ASPM L1 Link Power Management disabled

 Sysinfo program /home/cpu2017/bin/sysinfo

 Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f

 running on linux-wwko Wed Oct 25 10:40:19 2017

SUT (System Under Test) info as seen by some common utilities.

For more information on this section, see

<https://www.spec.org/cpu2017/Docs/config.html#sysinfo>

From /proc/cpuinfo

model name : Intel(R) Xeon(R) Platinum 8180 CPU @ 2.50GHz

 2 "physical id"s (chips)

 56 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

 cpu cores : 28

 siblings : 28

 physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30

 physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30

From lscpu:

Architecture: x86_64

CPU op-mode(s): 32-bit, 64-bit

Byte Order: Little Endian

CPU(s): 56

On-line CPU(s) list: 0-55

Thread(s) per core: 1

Core(s) per socket: 28

Socket(s): 2

NUMA node(s): 2

Vendor ID: GenuineIntel

CPU family: 6

Model: 85

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R740 (Intel Xeon Platinum 8180, 2.50 GHz)

SPECrate2017_fp_base = 249

SPECrate2017_fp_peak = Not Run

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Oct-2017

Hardware Availability: Jul-2017

Software Availability: Sep-2017

Platform Notes (Continued)

```

Model name: Intel(R) Xeon(R) Platinum 8180 CPU @ 2.50GHz
Stepping: 4
CPU MHz: 2494.106
BogoMIPS: 4988.21
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 39424K
NUMA node0 CPU(s):
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54
NUMA node1 CPU(s):
1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
aperfmpperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
xsave avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb pln pts dtherm intel_pt
tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmil hle avx2 smep bmi2
erms invpcid rtm cqm mpx avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd
avx512bw avx512vl xsaveopt xsavec xgetbv1 cqm_llc cqm_occup_llc

```

```

/proc/cpuinfo cache data
cache size : 39424 KB

```

```

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
physical chip.
available: 2 nodes (0-1)
node 0 cpus: 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
52 54
node 0 size: 192109 MB
node 0 free: 191422 MB
node 1 cpus: 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51
53 55
node 1 size: 193504 MB
node 1 free: 192830 MB
node distances:
node 0 1
0: 10 21
1: 21 10

```

```

From /proc/meminfo
MemTotal: 394868376 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

```

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R740 (Intel Xeon Platinum 8180, 2.50 GHz)

SPECrate2017_fp_base = 249

SPECrate2017_fp_peak = Not Run

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Oct-2017

Hardware Availability: Jul-2017

Software Availability: Sep-2017

Platform Notes (Continued)

```
/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP2
```

```
From /etc/*release* /etc/*version*
```

```
SuSE-release:
```

```
SUSE Linux Enterprise Server 12 (x86_64)
```

```
VERSION = 12
```

```
PATCHLEVEL = 2
```

```
# This file is deprecated and will be removed in a future service pack or release.
```

```
# Please check /etc/os-release for details about this release.
```

```
os-release:
```

```
NAME="SLES"
```

```
VERSION="12-SP2"
```

```
VERSION_ID="12.2"
```

```
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
```

```
ID="sles"
```

```
ANSI_COLOR="0;32"
```

```
CPE_NAME="cpe:/o:suse:sles:12:sp2"
```

```
uname -a:
```

```
Linux linux-wwko 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016 (9464f67)
```

```
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Oct 25 10:02
```

```
SPEC is set to: /home/cpu2017
```

| Filesystem | Type | Size | Used | Avail | Use% | Mounted on |
|------------|------|------|------|-------|------|------------|
| /dev/sda2 | xf | 892G | 44G | 849G | 5% | / |

Additional information from dmidecode follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

```
BIOS Dell Inc. 1.1.7 08/10/2017
```

```
Memory:
```

```
24x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666
```

(End of data from sysinfo program)

Compiler Version Notes

```
=====  
CC 519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)  
=====
```

```
icc (ICC) 18.0.0 20170811
```

```
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R740 (Intel Xeon Platinum 8180, 2.50 GHz)

SPECrate2017_fp_base = 249

SPECrate2017_fp_peak = Not Run

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Oct-2017

Hardware Availability: Jul-2017

Software Availability: Sep-2017

Compiler Version Notes (Continued)

=====
CXXC 508.namd_r(base) 510.parest_r(base)
=====

icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
=====

=====
CC 511.povray_r(base) 526.blender_r(base)
=====

icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
=====

=====
FC 507.cactuBSSN_r(base)
=====

icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
=====

=====
FC 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)
=====

ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
=====

=====
CC 521.wrf_r(base) 527.cam4_r(base)
=====

ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
=====



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R740 (Intel Xeon Platinum 8180, 2.50 GHz)

SPECrate2017_fp_base = 249

SPECrate2017_fp_peak = Not Run

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Oct-2017

Hardware Availability: Jul-2017

Software Availability: Sep-2017

Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

ifort icc

Benchmarks using both C and C++:

icpc icc

Benchmarks using Fortran, C, and C++:

icpc icc ifort

Base Portability Flags

503.bwaves_r: -DSPEC_LP64

507.cactuBSSN_r: -DSPEC_LP64

508.namd_r: -DSPEC_LP64

510.parest_r: -DSPEC_LP64

511.povray_r: -DSPEC_LP64

519.lbm_r: -DSPEC_LP64

521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian

526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char

527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG

538.imagick_r: -DSPEC_LP64

544.nab_r: -DSPEC_LP64

549.fotonik3d_r: -DSPEC_LP64

554.roms_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch

-ffinite-math-only -qopt-mem-layout-trans=3

C++ benchmarks:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R740 (Intel Xeon Platinum 8180, 2.50 GHz)

SPECrate2017_fp_base = 249

SPECrate2017_fp_peak = Not Run

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Oct-2017

Hardware Availability: Jul-2017

Software Availability: Sep-2017

Base Optimization Flags (Continued)

C++ benchmarks (continued):

-ffinite-math-only -qopt-mem-layout-trans=3

Fortran benchmarks:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch

-ffinite-math-only -qopt-mem-layout-trans=3 -nostandard-realloc-lhs

-align array32byte

Benchmarks using both Fortran and C:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch

-ffinite-math-only -qopt-mem-layout-trans=3 -nostandard-realloc-lhs

-align array32byte

Benchmarks using both C and C++:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch

-ffinite-math-only -qopt-mem-layout-trans=3

Benchmarks using Fortran, C, and C++:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch

-ffinite-math-only -qopt-mem-layout-trans=3 -nostandard-realloc-lhs

-align array32byte

Base Other Flags

C benchmarks:

-m64 -std=c11

C++ benchmarks:

-m64

Fortran benchmarks:

-m64

Benchmarks using both Fortran and C:

-m64 -std=c11

Benchmarks using both C and C++:

-m64 -std=c11

Benchmarks using Fortran, C, and C++:

-m64 -std=c11



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R740 (Intel Xeon Platinum 8180, 2.50 GHz)

SPECrate2017_fp_base = 249

SPECrate2017_fp_peak = Not Run

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Oct-2017

Hardware Availability: Jul-2017

Software Availability: Sep-2017

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge14G-revC.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge14G-revC.xml>

SPEC is a registered trademark of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU2017 v1.0.2 on 2017-10-25 11:40:18-0400.

Report generated on 2018-10-31 13:04:34 by CPU2017 PDF formatter v6067.

Originally published on 2017-11-14.