SPEC CPU®2017 Floating Point Rate Result

Dell Inc.

PowerEdge MX840c (Intel Xeon Platinum 8268, 2.90GHz)

SPECrate®2017_fp_base = 507

SPECrate®2017_fp_peak = 519

CPU2017 License: 55	**Test Date:** Jul-2019
Test Sponsor: Dell Inc.	**Hardware Availability:** Apr-2019
Tested by: Dell Inc.	**Software Availability:** May-2019

Copies (all 192)

- 503.bwaves_r: 1020 / 1020
- 507.cactuBSSN_r: 450 / 451
- 508.namd_r: 434 / 438
- 510.parest_r: 261 / 261
- 511.povray_r: 664 / 799
- 519.lbm_r: 243 / 248
- 521.wrf_r: 461 / 466
- 526.blender_r: 617 / 617
- 527.cam4_r: 650 / 659
- 538.imagick_r: 1410 / 1430
- 544.nab_r: 1030 / 1030
- 549.fotonik3d_r: 326 / 327
- 554.roms_r: 202 / 207

SPECrate®2017_fp_base (507)   SPECrate®2017_fp_peak (519)

Hardware

CPU Name: Intel Xeon Platinum 8268
 Max MHz: 3900
 Nominal: 2900
Enabled: 96 cores, 4 chips, 2 threads/core
Orderable: 2,4 chips
Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 35.75 MB I+D on chip per chip
 Other: None
Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)
Storage: 1 x 480 GB SATA SSD
Other: None

Software

OS: Ubuntu 18.04.2 LTS
 kernel 4.15.0-45-generic
Compiler: C/C++: Version 19.0.4.227 of Intel C/C++
 Compiler Build 20190416 for Linux;
 Fortran: Version 19.0.4.227 of Intel Fortran
 Compiler Build 20190416 for Linux
Parallel: No
Firmware: Version 2.2.9 released May-2019
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: None
Power Management: --

Standard Performance Evaluation Corporation (info@spec.org)   https://www.spec.org/

SPEC CPU®2017 Floating Point Rate Result

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Dell Inc.

PowerEdge MX840c (Intel Xeon Platinum 8268, 2.90GHz)

SPECrate®2017_fp_base = 507

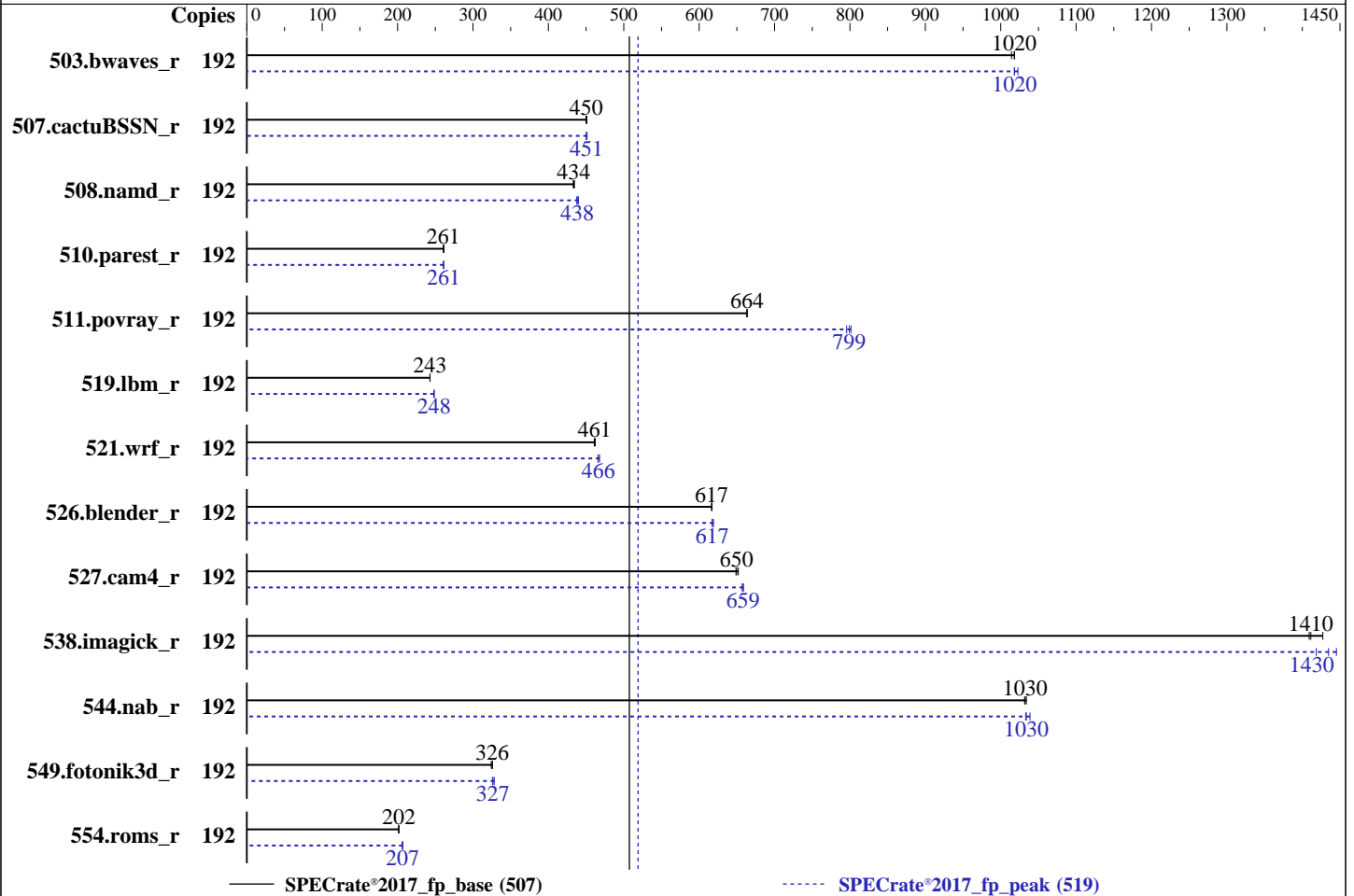SPECrate®2017_fp_peak = 519

CPU2017 License: 55		**Test Date:** Jul-2019
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Results Table

Benchmark	Base						Peak					
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	192	1891	1020	**1892**	**1020**	1898	1010	192	1891	1020	**1891**	**1020**	1882	1020
507.cactuBSSN_r	192	540	450	**540**	**450**	539	451	192	**539**	**451**	540	450	539	451
508.namd_r	192	**421**	**434**	421	433	420	435	192	**416**	**438**	417	438	415	440
510.parest_r	192	**1925**	**261**	1926	261	1921	261	192	**1925**	**261**	1925	261	1923	261
511.povray_r	192	**676**	**664**	676	664	676	663	192	563	796	**561**	**799**	559	801
519.lbm_r	192	**833**	**243**	833	243	833	243	192	**815**	**248**	815	248	815	248
521.wrf_r	192	933	461	**932**	**461**	930	462	192	919	468	923	466	**922**	**466**
526.blender_r	192	474	617	474	616	**474**	**617**	192	**474**	**617**	474	617	472	619
527.cam4_r	192	**517**	**650**	515	652	518	649	192	511	657	510	659	**510**	**659**
538.imagick_r	192	335	1430	339	1410	**338**	**1410**	192	330	1450	337	1420	**333**	**1430**
544.nab_r	192	**313**	**1030**	313	1030	313	1030	192	**313**	**1030**	311	1040	313	1030
549.fotonik3d_r	192	2308	324	2297	326	**2298**	**326**	192	2279	328	2296	326	**2291**	**327**
554.roms_r	192	**1514**	**202**	1513	202	1514	201	192	1475	207	1480	206	**1476**	**207**
SPECrate®2017_fp_base =			**507**									
SPECrate®2017_fp_peak =			**519**									

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.

General Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/lib/ia32:/home/cpu2017/je5.0.1-32"

Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.5
NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.
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>

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Test Date: Jul-2019
Hardware Availability: Apr-2019
Software Availability: May-2019

Platform Notes

```
BIOS settings:
ADDDC setting disabled
Sub NUMA Cluster disabled
Virtualization Technology disabled
DCU Streamer Prefetcher 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 enabled
CPU Interconnect Bus Link Power Management disabled
PCI ASPM L1 Link Power Management disabled
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on intel-sut Wed Aug 21 22:08:13 2019

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 8268 CPU @ 2.90GHz
      4  "physical id"s (chips)
      192 "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 : 24
      siblings  : 48
      physical 0: cores 0 1 2 3 4 5 6 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
      physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 24 26 27 28 29
      physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 25 26 27 28 29
      physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 25 26 27 29

From lscpu:
   Architecture:        x86_64
   CPU op-mode(s):      32-bit, 64-bit
   Byte Order:          Little Endian
   CPU(s):              192
   On-line CPU(s) list: 0-191
   Thread(s) per core:  2
   Core(s) per socket:  24
   Socket(s):           4
   NUMA node(s):        8
   Vendor ID:           GenuineIntel
```

(Continued on next page)

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Tested by:	Dell Inc.	**Software Availability:**	May-2019

Platform Notes (Continued)

```
        CPU family:           6
        Model:                85
        Model name:           Intel(R) Xeon(R) Platinum 8268 CPU @ 2.90GHz
        Stepping:             6
        CPU MHz:              3297.225
        BogoMIPS:             5800.00
        Virtualization:       VT-x
        L1d cache:            32K
        L1i cache:            32K
        L2 cache:             1024K
        L3 cache:             36608K
        NUMA node0 CPU(s):
        0,9,17,25,33,41,49,57,65,73,81,89,96,105,113,121,129,137,145,153,161,169,177,185
        NUMA node1 CPU(s):
        1,8,16,24,32,40,48,56,64,72,80,88,97,104,112,120,128,136,144,152,160,168,176,184
        NUMA node2 CPU(s):
        2,10,18,26,34,42,50,58,66,74,82,90,98,106,114,122,130,138,146,154,162,170,178,186
        NUMA node3 CPU(s):
        3,11,19,27,35,43,51,59,67,75,83,91,99,107,115,123,131,139,147,155,163,171,179,187
        NUMA node4 CPU(s):
        4,12,20,28,36,44,52,60,68,76,84,92,100,108,116,124,132,140,148,156,164,172,180,188
        NUMA node5 CPU(s):
        5,13,21,29,37,45,53,61,69,77,85,93,101,109,117,125,133,141,149,157,165,173,181,189
        NUMA node6 CPU(s):
        6,14,22,30,38,46,54,62,70,78,86,94,102,110,118,126,134,142,150,158,166,174,182,190
        NUMA node7 CPU(s):
        7,15,23,31,39,47,55,63,71,79,87,95,103,111,119,127,135,143,151,159,167,175,183,191
        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 cpuid
        aperfmperf 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 aes xsave avx f16c rdrand
        lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3 invpcid_single intel_ppin
        ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid
        fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rdt_a avx512f
        avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl
        xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
        dtherm ida arat pln pts pku ospke avx512_vnni flush_l1d arch_capabilities

 /proc/cpuinfo cache data
    cache size : 36608 KB

 From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a
 physical chip.
   available: 8 nodes (0-7)
   node 0 cpus: 0 9 17 25 33 41 49 57 65 73 81 89 96 105 113 121 129 137 145 153 161 169
   177 185
```

(Continued on next page)

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Hardware Availability: Apr-2019
Software Availability: May-2019

Platform Notes (Continued)

```
   node 0 size: 96763 MB
   node 0 free: 96303 MB
   node 1 cpus: 1 8 16 24 32 40 48 56 64 72 80 88 97 104 112 120 128 136 144 152 160 168
   176 184
   node 1 size: 95146 MB
   node 1 free: 94687 MB
   node 2 cpus: 2 10 18 26 34 42 50 58 66 74 82 90 98 106 114 122 130 138 146 154 162 170
   178 186
   node 2 size: 96763 MB
   node 2 free: 96268 MB
   node 3 cpus: 3 11 19 27 35 43 51 59 67 75 83 91 99 107 115 123 131 139 147 155 163 171
   179 187
   node 3 size: 96742 MB
   node 3 free: 96297 MB
   node 4 cpus: 4 12 20 28 36 44 52 60 68 76 84 92 100 108 116 124 132 140 148 156 164 172
   180 188
   node 4 size: 96763 MB
   node 4 free: 96240 MB
   node 5 cpus: 5 13 21 29 37 45 53 61 69 77 85 93 101 109 117 125 133 141 149 157 165 173
   181 189
   node 5 size: 96763 MB
   node 5 free: 96300 MB
   node 6 cpus: 6 14 22 30 38 46 54 62 70 78 86 94 102 110 118 126 134 142 150 158 166 174
   182 190
   node 6 size: 96763 MB
   node 6 free: 96308 MB
   node 7 cpus: 7 15 23 31 39 47 55 63 71 79 87 95 103 111 119 127 135 143 151 159 167 175
   183 191
   node 7 size: 96761 MB
   node 7 free: 96339 MB
   node distances:
   node   0   1   2   3   4   5   6   7
     0:  10  21  21  21  21  11  21  21
     1:  21  10  21  21  11  21  21  21
     2:  21  21  10  21  21  21  11  21
     3:  21  21  21  10  21  21  21  11
     4:  21  11  21  21  10  21  21  21
     5:  11  21  21  21  21  10  21  21
     6:  21  21  11  21  21  21  10  21
     7:  21  21  21  11  21  21  21  10

 From /proc/meminfo
    MemTotal:       791007176 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
```

(Continued on next page)

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Platform Notes (Continued)

```
    Ubuntu 18.04.2 LTS

 From /etc/*release* /etc/*version*
    debian_version: buster/sid
    os-release:
        NAME="Ubuntu"
        VERSION="18.04.2 LTS (Bionic Beaver)"
        ID=ubuntu
        ID_LIKE=debian
        PRETTY_NAME="Ubuntu 18.04.2 LTS"
        VERSION_ID="18.04"
        HOME_URL="https://www.ubuntu.com/"
        SUPPORT_URL="https://help.ubuntu.com/"

 uname -a:
    Linux intel-sut 4.15.0-45-generic #48-Ubuntu SMP Tue Jan 29 16:28:13 UTC 2019 x86_64
    x86_64 x86_64 GNU/Linux

 Kernel self-reported vulnerability status:

 CVE-2017-5754 (Meltdown):            Not affected
 CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
 CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB

 run-level 3 Aug 21 13:48

 SPEC is set to: /home/cpu2017
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda2       ext4  439G   31G  386G   8% /

 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. 2.2.9 05/08/2019
    Memory:
     16x 00AD00B300AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
     8x 00AD063200AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
     24x Not Specified Not Specified

 (End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
 C                | 519.lbm_r(base, peak) 538.imagick_r(base, peak)
```

(Continued on next page)

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Compiler Version Notes (Continued)

```
                       | 544.nab_r(base, peak)
-----------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
-----------------------------------------------------------------------------


==============================================================================
C++            | 508.namd_r(base, peak) 510.parest_r(base, peak)
-----------------------------------------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
-----------------------------------------------------------------------------


==============================================================================
C++, C         | 511.povray_r(base, peak) 526.blender_r(base, peak)
-----------------------------------------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
-----------------------------------------------------------------------------


==============================================================================
C++, C, Fortran | 507.cactuBSSN_r(base, peak)
-----------------------------------------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
  64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
-----------------------------------------------------------------------------


==============================================================================
Fortran        | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak)
               | 554.roms_r(base, peak)
-----------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
  64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
```

(Continued on next page)

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Compiler Version Notes (Continued)

```
--------------------------------------------------------------------

==================================================================
Fortran, C      | 521.wrf_r(base, peak) 527.cam4_r(base, peak)
--------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
  64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
--------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`icc -m64 -std=c11`

C++ benchmarks:
`icpc -m64`

Fortran benchmarks:
`ifort -m64`

Benchmarks using both Fortran and C:
`ifort -m64 icc -m64 -std=c11`

Benchmarks using both C and C++:
`icpc -m64 icc -m64 -std=c11`

Benchmarks using Fortran, C, and C++:
`icpc -m64 icc -m64 -std=c11 ifort -m64`

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`

(Continued on next page)

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Base Portability Flags (Continued)

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-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only`
`-qopt-mem-layout-trans=4`

C++ benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only`
`-qopt-mem-layout-trans=4`

Fortran benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only`
`-qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs`
`-align array32byte`

Benchmarks using both Fortran and C:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only`
`-qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs`
`-align array32byte`

Benchmarks using both C and C++:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only`
`-qopt-mem-layout-trans=4`

Benchmarks using Fortran, C, and C++:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only`
`-qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs`
`-align array32byte`

Peak Compiler Invocation

C benchmarks:
`icc -m64 -std=c11`

C++ benchmarks:
`icpc -m64`

(Continued on next page)

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Hardware Availability: Apr-2019
Software Availability: May-2019

Peak Compiler Invocation (Continued)

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
ifort -m64 icc -m64 -std=c11
```

Benchmarks using both C and C++:
```
icpc -m64 icc -m64 -std=c11
```

Benchmarks using Fortran, C, and C++:
```
icpc -m64 icc -m64 -std=c11 ifort -m64
```

Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:

519.lbm_r: `-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4`

538.imagick_r: `-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4`

544.nab_r: `Same as 538.imagick_r`

C++ benchmarks:

508.namd_r: `-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4`

510.parest_r: `-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4`

Fortran benchmarks:

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

Dell Inc.

PowerEdge MX840c (Intel Xeon Platinum 8268, 2.90GHz)

SPECrate®2017_fp_base = 507

SPECrate®2017_fp_peak = 519

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jul-2019

Hardware Availability: Apr-2019

Software Availability: May-2019

Peak Optimization Flags (Continued)

503.bwaves_r: `-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs -align array32byte`

549.fotonik3d_r: `Same as 503.bwaves_r`

554.roms_r: `-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs -align array32byte`

Benchmarks using both Fortran and C:
`-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs -align array32byte`

Benchmarks using both C and C++:

511.povray_r: `-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4`

526.blender_r: `-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4`

Benchmarks using Fortran, C, and C++:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs -align array32byte`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-09.html
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge14G-revE3.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-09.xml
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge14G-revE3.xml

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

Tested with SPEC CPU®2017 v1.0.5 on 2019-08-21 18:08:12-0400.
Report generated on 2019-10-01 14:17:10 by CPU2017 PDF formatter v6255.
Originally published on 2019-10-01.