**Dell Inc.**

PowerEdge M640 (Intel Xeon Gold 6230N, 2.30GHz)

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base = 197</th>
<th>SPECrate®2017_fp_peak = 202</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell Inc.</td>
<td>Test Date: Sep-2019</td>
</tr>
<tr>
<td>Dell Inc.</td>
<td>Hardware Availability: Apr-2019</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Gold 6230N
- **Max MHz:** 3900
- **Nominal:** 2300
- **Enabled:** 40 cores, 2 chips, 2 threads/core
- **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:** 27.5 MB I+D on chip per chip
- **Other:** None
- **Memory:** 384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R)
- **Storage:** 1 x 480 GB SATA SSD
- **Other:** None
- **OS:** Ubuntu 18.04.2 LTS
- **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 2.2.11 released Jun-2019
- **File System:** ext4
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 64-bit
- **Other:** None
- **Power Management:** --

### Software

<table>
<thead>
<tr>
<th>503.bwaves_r 80</th>
<th>507.cactuBSSN_r 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>145</td>
<td>147</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>508.namd_r 80</th>
<th>510.parest_r 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>111</td>
<td>110</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>511.povray_r 80</th>
<th>519.lbm_r 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>223</td>
<td>108</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>521.wrf_r 80</th>
<th>526.blender_r 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>201</td>
<td>214</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>527.cam4_r 80</th>
<th>538.imagick_r 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>227</td>
<td>487</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>544.nab_r 80</th>
<th>549.fotonik3d_r 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>347</td>
<td>158</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>554.roms_r 80</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>87.8</td>
<td></td>
</tr>
</tbody>
</table>

---

SPECrate®2017_fp_base (197) --- SPECrate®2017_fp_peak (202)
SPEC CPU®2017 Floating Point Rate Result

Dell Inc.

PowerEdge M640 (Intel Xeon Gold 6230N, 2.30GHz)

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>80</td>
<td>1708</td>
<td>470</td>
<td>1698</td>
<td>472</td>
<td>1705</td>
<td>471</td>
<td>80</td>
<td>1701</td>
<td>472</td>
<td>1707</td>
<td>470</td>
<td>1706</td>
<td>470</td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>80</td>
<td>621</td>
<td>163</td>
<td>623</td>
<td>163</td>
<td>622</td>
<td>163</td>
<td>80</td>
<td>622</td>
<td>163</td>
<td>623</td>
<td>162</td>
<td>621</td>
<td>163</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>80</td>
<td>524</td>
<td>145</td>
<td>525</td>
<td>145</td>
<td>524</td>
<td>145</td>
<td>80</td>
<td>518</td>
<td>147</td>
<td>518</td>
<td>147</td>
<td>518</td>
<td>147</td>
</tr>
<tr>
<td>510.parest_r</td>
<td>80</td>
<td>1880</td>
<td>111</td>
<td>1889</td>
<td>111</td>
<td>1892</td>
<td>111</td>
<td>80</td>
<td>1895</td>
<td>110</td>
<td>1887</td>
<td>111</td>
<td>1896</td>
<td>110</td>
</tr>
<tr>
<td>511.povray_r</td>
<td>80</td>
<td>839</td>
<td>223</td>
<td>837</td>
<td>223</td>
<td>836</td>
<td>223</td>
<td>80</td>
<td>697</td>
<td>268</td>
<td>698</td>
<td>268</td>
<td>697</td>
<td>268</td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>80</td>
<td>779</td>
<td>108</td>
<td>780</td>
<td>108</td>
<td>780</td>
<td>108</td>
<td>80</td>
<td>762</td>
<td>111</td>
<td>762</td>
<td>111</td>
<td>763</td>
<td>110</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>80</td>
<td>894</td>
<td>200</td>
<td>881</td>
<td>203</td>
<td>894</td>
<td>201</td>
<td>80</td>
<td>875</td>
<td>205</td>
<td>878</td>
<td>204</td>
<td>881</td>
<td>203</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>80</td>
<td>569</td>
<td>214</td>
<td>570</td>
<td>214</td>
<td>570</td>
<td>214</td>
<td>80</td>
<td>568</td>
<td>215</td>
<td>570</td>
<td>214</td>
<td>569</td>
<td>214</td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>80</td>
<td>614</td>
<td>228</td>
<td>615</td>
<td>227</td>
<td>618</td>
<td>226</td>
<td>80</td>
<td>602</td>
<td>232</td>
<td>604</td>
<td>232</td>
<td>604</td>
<td>232</td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>80</td>
<td>408</td>
<td>487</td>
<td>409</td>
<td>478</td>
<td>409</td>
<td>487</td>
<td>80</td>
<td>408</td>
<td>488</td>
<td>409</td>
<td>486</td>
<td>409</td>
<td>486</td>
</tr>
<tr>
<td>544.nab_r</td>
<td>80</td>
<td>388</td>
<td>347</td>
<td>385</td>
<td>350</td>
<td>390</td>
<td>345</td>
<td>80</td>
<td>385</td>
<td>350</td>
<td>387</td>
<td>348</td>
<td>384</td>
<td>350</td>
</tr>
<tr>
<td>554.roms_r</td>
<td>80</td>
<td>1448</td>
<td>87.8</td>
<td>1445</td>
<td>88.0</td>
<td>1452</td>
<td>87.5</td>
<td>80</td>
<td>1385</td>
<td>91.8</td>
<td>1387</td>
<td>91.6</td>
<td>1384</td>
<td>91.8</td>
</tr>
</tbody>
</table>

SPECrate®2017_fp_base = 197
SPECrate®2017_fp_peak = 202

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

Submit Notes

The config file option 'submit' was used.

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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"
OMP_STACKSIZE = "192M"

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

(Continued on next page)
General Notes (Continued)

Filesystem page cache synced and cleared with:
sync; echo 3>       /proc/sys/vm/drop_caches

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 9bcede8f2999c33d61f64985e45859ea9
running on intel-sut Tue Sep 17 03:25:55 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) Gold 6230N CPU @ 2.30GHz
  2  "physical id"s (chips)
  80 "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 : 20
siblings : 40
physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

From lscpu:
Architecture:       x86_64
CPU op-mode(s):     32-bit, 64-bit
Byte Order:         Little Endian
CPU(s):             80
On-line CPU(s) list: 0-79
Thread(s) per core: 2

(Continued on next page)
Platform Notes (Continued)

Core(s) per socket: 20
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6230N CPU @ 2.30GHz
Stepping: 6
CPU MHz: 2264.562
BogoMIPS: 4600.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 28160K
NUMA node0 CPU(s): 0,4,8,12,16,20,24,28,32,36,40,44,48,52,56,60,64,68,72,76
NUMA node1 CPU(s): 1,5,9,13,17,21,25,29,33,37,41,45,49,53,57,61,65,69,73,77
NUMA node2 CPU(s): 2,6,10,14,18,22,26,30,34,38,42,46,50,54,58,62,66,70,74,78
NUMA node3 CPU(s): 3,7,11,15,19,23,27,31,35,39,43,47,51,55,59,63,67,71,75,79
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 rdtsscp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid
aperfperf 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 cpuid_fault epb cat_l3 cdp_l3
invpcid_single intel_pinn ssbd mba ibrs ibpb ibrs_enabled tpr_shadow vnmi
flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm
cqm mpx rdrtio avx512if avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd
avx512bw avx512vl xsaves xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbb_total
cqm_mbb_local dtherm ida arat pln ptu osk avx512_vnni md_clear flush_l1d
arch_capabilities

/proc/cpuinfo cache data
cache size: 28160 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
physical chip.
available: 4 nodes (0-3)
node 0 cpus: 0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76
node 0 size: 95144 MB
node 0 free: 94586 MB
node 1 cpus: 1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77
node 1 size: 96764 MB
node 1 free: 96213 MB
node 2 cpus: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58 62 66 70 74 78
node 2 size: 96764 MB
node 2 free: 96276 MB

(Continued on next page)
**Platform Notes (Continued)**

```
node 3 cpus: 3 7 11 15 19 23 27 31 35 39 43 47 51 55 59 63 67 71 75 79
node 3 size: 96741 MB
node 3 free: 95996 MB
node distances:
  node 0 1 2 3
  0: 10 21 11 21
  1: 21 10 21 11
  2: 11 21 10 21
  3: 21 11 21 10
```

From `/proc/meminfo`
```
MemTotal:       394665044 kB
HugePages_Total:       0
Hugepagesize:       2048 kB
```

```
/usr/bin/lsb_release -d
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 4.15.0-62-generic #69-Ubuntu SMP Wed Sep 4 20:55:53 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: usercopy/swapgs barriers and __user
  pointer sanitization
CVE-2017-5715 (Spectre variant 2):  Mitigation: Enhanced IBRS, IBPB: conditional, RSB
  filling
run-level 3 Sep 16 17:47
```

```
SPEC is set to: /home/cpu2017
  Filesystem  Type   Size  Used Avail Use% Mounted on
  /dev/sda2   ext4    439G  32G  385G   8% /
```

(Continued on next page)
**SPEC CPU®2017 Floating Point Rate Result**

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Dell Inc.**

PowerEdge M640 (Intel Xeon Gold 6230N, 2.30GHz)  

**SPECrate®2017_fp_base = 197**  
**SPECrate®2017_fp_peak = 202**

<table>
<thead>
<tr>
<th>CPU2017 License: 55</th>
<th>Test Date: Sep-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Dell Inc.</td>
<td>Hardware Availability: Apr-2019</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Sep-2019</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

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. 2.2.11 06/14/2019
- Memory:
  - 6x 00AD00B300AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
  - 3x 00AD063200AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
  - 3x 00AD069D00AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
  - 4x Not Specified Not Specified

(End of data from sysinfo program)

**Compiler Version Notes**

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

```
C++, C, Fortran
| 507.cactuBSSN_r(base, peak)

(Continued on next page)
```
Dell Inc.

PowerEdge M640 (Intel Xeon Gold 6230N, 2.30GHz)

SPECrated®2017_fp_base = 197
SPECrated®2017_fp_peak = 202

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

Test Date: Sep-2019
Hardware Availability: Apr-2019
Software Availability: Sep-2019

Compiler Version Notes (Continued)

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, C

| 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) |
| 554.roms_r(base, peak) |

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

(Continued on next page)
Base Compiler Invocation (Continued)

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

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

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

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

(Continued on next page)
## Dell Inc.

**PowerEdge M640 (Intel Xeon Gold 6230N, 2.30GHz)**

**SPECrate®2017_fp_base = 197**  
**SPECrate®2017_fp_peak = 202**

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>Test Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>Sep-2019</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Sponsor</th>
<th>Hardware Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell Inc.</td>
<td>Apr-2019</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tested by</th>
<th>Software Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell Inc.</td>
<td>Sep-2019</td>
</tr>
</tbody>
</table>

## Base Optimization Flags (Continued)

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
```

**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
```

(Continued on next page)
Dell Inc.
PowerEdge M640 (Intel Xeon Gold 6230N, 2.30GHz)

SPECrate®2017_fp_base = 197
SPECrate®2017_fp_peak = 202

Peak Optimization Flags (Continued)

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:

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:

-xprof-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

(Continued on next page)
Dell Inc.

PowerEdge M640 (Intel Xeon Gold 6230N, 2.30GHz)

SPECrates®2017_fp_base = 197
SPECrates®2017_fp_peak = 202

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

Test Date: Sep-2019
Hardware Availability: Apr-2019
Software Availability: Sep-2019

Peak Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):
-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

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

SPEC CPU and SPECrates® are registered trademarks 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 CPU®2017 v1.0.5 on 2019-09-16 23:25:55-0400.
Originally published on 2019-12-10.