# SPEC® CPU2017 Floating Point Rate Result

**Dell Inc.**

PowerEdge M640 (Intel Xeon Platinum 8270, 2.70GHz)  

<table>
<thead>
<tr>
<th>SPECrate2017_fp_base = 257</th>
<th>SPECrate2017_fp_peak = 262</th>
</tr>
</thead>
</table>

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

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate2017_fp_base</th>
<th>SPECrate2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>520</td>
<td>505</td>
</tr>
<tr>
<td>30.0</td>
<td>490</td>
<td>475</td>
</tr>
<tr>
<td>70.0</td>
<td>460</td>
<td>445</td>
</tr>
<tr>
<td>110.0</td>
<td>430</td>
<td>415</td>
</tr>
<tr>
<td>150.0</td>
<td>420</td>
<td>405</td>
</tr>
<tr>
<td>190.0</td>
<td>410</td>
<td>395</td>
</tr>
<tr>
<td>230.0</td>
<td>400</td>
<td>385</td>
</tr>
<tr>
<td>270.0</td>
<td>390</td>
<td>375</td>
</tr>
<tr>
<td>310.0</td>
<td>380</td>
<td>365</td>
</tr>
<tr>
<td>350.0</td>
<td>370</td>
<td>355</td>
</tr>
<tr>
<td>390.0</td>
<td>360</td>
<td>345</td>
</tr>
<tr>
<td>430.0</td>
<td>350</td>
<td>335</td>
</tr>
<tr>
<td>470.0</td>
<td>340</td>
<td>325</td>
</tr>
<tr>
<td>510.0</td>
<td>330</td>
<td>315</td>
</tr>
<tr>
<td>550.0</td>
<td>320</td>
<td>305</td>
</tr>
<tr>
<td>590.0</td>
<td>310</td>
<td>295</td>
</tr>
<tr>
<td>630.0</td>
<td>300</td>
<td>285</td>
</tr>
<tr>
<td>670.0</td>
<td>290</td>
<td>275</td>
</tr>
<tr>
<td>710.0</td>
<td>280</td>
<td>265</td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon Platinum 8270  
- **Max MHz.:** 4000  
- **Nominal:** 2700  
- **Enabled:** 52 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:** 35.75 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

**Software**

- **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 2.3.1 released May-2019  
- **File System:** ext4  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 64-bit  
- **Other:** None
### SPEC CPU2017 Floating Point Rate Result

**Dell Inc.**

PowerEdge M640 (Intel Xeon Platinum 8270, 2.70GHz)

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

**SPECrate2017_fp_base = 257**

**SPECrate2017_fp_peak = 262**

---

#### 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>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>104</td>
<td>2049</td>
<td>509</td>
<td>2072</td>
<td>503</td>
<td>2050</td>
<td>509</td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>104</td>
<td>567</td>
<td>232</td>
<td>569</td>
<td>231</td>
<td>568</td>
<td>232</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>104</td>
<td>443</td>
<td>223</td>
<td>444</td>
<td>223</td>
<td>442</td>
<td>223</td>
</tr>
<tr>
<td>510.parest_r</td>
<td>104</td>
<td>2135</td>
<td>127</td>
<td>2136</td>
<td>127</td>
<td>2131</td>
<td>128</td>
</tr>
<tr>
<td>511.povray_r</td>
<td>104</td>
<td>706</td>
<td>344</td>
<td>708</td>
<td>343</td>
<td>706</td>
<td>344</td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>104</td>
<td>891</td>
<td>123</td>
<td>891</td>
<td>123</td>
<td>891</td>
<td>123</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>104</td>
<td>1021</td>
<td>228</td>
<td>1018</td>
<td>229</td>
<td>1026</td>
<td>227</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>104</td>
<td>498</td>
<td>318</td>
<td>498</td>
<td>318</td>
<td>498</td>
<td>318</td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>104</td>
<td>545</td>
<td>334</td>
<td>546</td>
<td>333</td>
<td>547</td>
<td>333</td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>104</td>
<td>354</td>
<td>732</td>
<td>352</td>
<td>735</td>
<td>350</td>
<td>738</td>
</tr>
<tr>
<td>544.nab_r</td>
<td>104</td>
<td>327</td>
<td>535</td>
<td>329</td>
<td>532</td>
<td>329</td>
<td>532</td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>104</td>
<td>2460</td>
<td>165</td>
<td>2449</td>
<td>165</td>
<td>2452</td>
<td>165</td>
</tr>
<tr>
<td>554.roms_r</td>
<td>104</td>
<td>1685</td>
<td>98.1</td>
<td>1682</td>
<td>98.3</td>
<td>1693</td>
<td>97.6</td>
</tr>
</tbody>
</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>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>104</td>
<td>2064</td>
<td>505</td>
<td>2061</td>
<td>506</td>
<td>2069</td>
<td>504</td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>104</td>
<td>568</td>
<td>232</td>
<td>569</td>
<td>231</td>
<td>570</td>
<td>231</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>104</td>
<td>438</td>
<td>226</td>
<td>438</td>
<td>226</td>
<td>438</td>
<td>225</td>
</tr>
<tr>
<td>510.parest_r</td>
<td>104</td>
<td>2136</td>
<td>127</td>
<td>2136</td>
<td>127</td>
<td>2139</td>
<td>127</td>
</tr>
<tr>
<td>511.povray_r</td>
<td>104</td>
<td>586</td>
<td>415</td>
<td>585</td>
<td>415</td>
<td>587</td>
<td>414</td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>104</td>
<td>879</td>
<td>125</td>
<td>878</td>
<td>125</td>
<td>880</td>
<td>125</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>104</td>
<td>1011</td>
<td>230</td>
<td>1018</td>
<td>229</td>
<td>1014</td>
<td>230</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>104</td>
<td>499</td>
<td>318</td>
<td>499</td>
<td>318</td>
<td>499</td>
<td>318</td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>104</td>
<td>540</td>
<td>337</td>
<td>548</td>
<td>332</td>
<td>540</td>
<td>337</td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>104</td>
<td>351</td>
<td>737</td>
<td>353</td>
<td>734</td>
<td>353</td>
<td>733</td>
</tr>
<tr>
<td>544.nab_r</td>
<td>104</td>
<td>329</td>
<td>531</td>
<td>328</td>
<td>534</td>
<td>329</td>
<td>532</td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>104</td>
<td>2449</td>
<td>166</td>
<td>2451</td>
<td>165</td>
<td>2448</td>
<td>166</td>
</tr>
<tr>
<td>554.roms_r</td>
<td>104</td>
<td>1634</td>
<td>101</td>
<td>1634</td>
<td>101</td>
<td>1640</td>
<td>101</td>
</tr>
</tbody>
</table>

---

**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"

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)
Dell Inc.  
PowerEdge M640 (Intel Xeon Platinum 8270, 2.70GHz)  

SPECrate2017_fp_base = 257  
SPECrate2017_fp_peak = 262

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

General Notes (Continued)

Filesystem page cache synced and cleared with:
sync; echo 3> /proc/sys/vm/drop_caches
runcpu command invoked through numaclt i.e.:
umaclt --interleave=all runcpu <etc>

Platform Notes

BIOS settings:
ADDDC setting disabled
Sub NUMA Cluster enabled
Virtualization Technology disabled
DCU Streamer Prefetcher enabled
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 Jun 19 01:36:32 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 8270 CPU @ 2.70GHz
  2 "physical id"s (chips)
  104 "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 : 26
siblings  : 52
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 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 22 24 25 26 27 28
          29

From lscpu:
  Architecture: x86_64
  CPU op-mode(s): 32-bit, 64-bit

(Continued on next page)
Dell Inc. PowerEdge M640 (Intel Xeon Platinum 8270, 2.70GHz)

SPEC CPU2017 Floating Point Rate Result

```
SPECrate2017_fp_base = 257
SPECrate2017_fp_peak = 262
```

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

**Platform Notes (Continued)**

Byte Order: Little Endian
CPU(s): 104
On-line CPU(s) list: 0-103
Thread(s) per core: 2
Core(s) per socket: 26
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Platinum 8270 CPU @ 2.70GHz
Stepping: 6
CPU MHz: 3538.245
BogoMIPS: 5400.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 36608K
NUMA node0 CPU(s):
0, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96, 100
NUMA node1 CPU(s):
1, 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45, 49, 53, 57, 61, 65, 69, 73, 77, 81, 85, 89, 93, 97, 101
NUMA node2 CPU(s):
2, 6, 10, 14, 18, 22, 26, 30, 34, 38, 42, 46, 50, 54, 58, 62, 66, 70, 74, 78, 82, 86, 90, 94, 98, 102
NUMA node3 CPU(s):
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 xtopr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand lahf_lm abm 3nowprefetch cpuid_fault epb cat_l3 cdp_l3 invpcid_single intel_ppin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vmmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 3dnow invpdid rtm cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsavec xsaveopt xsaves cqm_llc cqm_occup_llc cqm_mbb_total cqm_mbb_local dtherm ida arat pln pts pku ospke avx512_vnni flush_lld arch_capabilities

```
/platform/cpuinfo/cache_data
cache size : 36608 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 80 84 88 92 96 100

(Continued on next page)
## SPEC CPU2017 Floating Point Rate Result

### Dell Inc.

**PowerEdge M640 (Intel Xeon Platinum 8270, 2.70GHz)**

<table>
<thead>
<tr>
<th>SPECrate2017_fp_peak = 262</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate2017_fp_base = 257</td>
</tr>
</tbody>
</table>

### CPU2017 License:
55

**Test Sponsor:** Dell Inc.

**Test Date:** Mar-2019

**Tested by:** Dell Inc.

**Hardware Availability:** Apr-2019

**Software Availability:** May-2019

---

### Platform Notes (Continued)

- **node 0 size:** 95143 MB
- **node 0 free:** 94536 MB
- **node 1 cpus:** 1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89 93 97 101
- **node 1 size:** 96763 MB
- **node 1 free:** 96226 MB
- **node 2 cpus:** 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58 62 66 70 74 78 82 86 90 94 98 102
- **node 2 size:** 96742 MB
- **node 2 free:** 96092 MB
- **node 3 cpus:** 3 7 11 15 19 23 27 31 35 39 43 47 51 55 59 63 67 71 75 79 83 87 91 95 99 103
- **node 3 size:** 96761 MB
- **node 3 free:** 96221 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:** 394660492 kB
- **HugePages_Total:** 0
- **Hugepagesize:** 2048 kB

From `/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 4.15.0-45-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:**

(Continued on next page)
Dell Inc.

PowerEdge M640 (Intel Xeon Platinum 8270, 2.70GHz)

SPECrate2017_fp_base = 257
SPECrate2017_fp_peak = 262

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

Platform Notes (Continued)

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 Jun 18 16:56

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. 2.3.1 05/02/2019
Memory:
  6x 00AD00B300AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
  6x 00AD069D00AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
  4x Not Specified Not Specified

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  519.lbm_r(base) 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.
==============================================================================

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

(Continued on next page)
## SPEC CPU2017 Floating Point Rate Result

**Dell Inc.**

PowerEdge M640 (Intel Xeon Platinum 8270, 2.70GHz)

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Dell Inc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPECrate2017_fp_peak</th>
<th>262</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate2017_fp_base</td>
<td>257</td>
</tr>
</tbody>
</table>

**Compiler Version Notes (Continued)**

---

### CXXC 508.namd_r(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.

---

### CC 511.povray_r(base) 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.

---

### CC 511.povray_r(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.

---

### FC 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.

(Continued on next page)
SPEC CPU2017 Floating Point Rate Result

Dell Inc.
PowerEdge M640 (Intel Xeon Platinum 8270, 2.70GHz)

SPECraten2017_fp_base = 257
SPECraten2017_fp_peak = 262

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

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

Compiler Version Notes (Continued)

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

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.

FC 554.roms_r(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.

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

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.

CC 521.wrf_r(peak) 527.cam4_r(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

(Continued on next page)
### Dell Inc. PowerEdge M640 (Intel Xeon Platinum 8270, 2.70GHz)

<table>
<thead>
<tr>
<th>SPECrate2017_fp_base</th>
<th>SPECrate2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>257</td>
<td>262</td>
</tr>
</tbody>
</table>

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

### Base 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
```

### 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.libm_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-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
```

(Continued on next page)
SPEC CPU2017 Floating Point Rate Result

Dell Inc.
PowerEdge M640 (Intel Xeon Platinum 8270, 2.70GHz)

SPECrate2017_fp_base = 257
SPECrate2017_fp_peak = 262

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

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

Base Optimization Flags (Continued)

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

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
Dell Inc.  
PowerEdge M640 (Intel Xeon Platinum 8270, 2.70GHz)

Dell Inc.  
PowerEdge M640 (Intel Xeon Platinum 8270, 2.70GHz)

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:
- 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

(Continued on next page)
SPEC CPU2017 Floating Point Rate Result

Dell Inc.
PowerEdge M640 (Intel Xeon Platinum 8270, 2.70GHz)

SPECrate2017_fp_base = 257
SPECrate2017_fp_peak = 262

Peak Optimization Flags (Continued)

526.blender_r: -xCORE-AVX2 -ipo -03 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4

Benchmarks using Fortran, C, and C++:
-xCORE-AVX2 -ipo -03 -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

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

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 v1.0.5 on 2019-06-18 21:36:31-0400.
Report generated on 2019-07-23 15:02:46 by CPU2017 PDF formatter v6067.
Originally published on 2019-07-23.