## SPEC CPU®2017 Floating Point Speed Result

### Dell Inc.
**PowerEdge R650 (Intel Xeon Platinum 8380, 2.30 GHz)**

<table>
<thead>
<tr>
<th>SPECspeed®2017_fp_base</th>
<th>SPECspeed®2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>228</td>
<td>231</td>
</tr>
</tbody>
</table>

<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>Apr-2021</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>May-2021</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Feb-2021</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Platinum 8380
- **Max MHz:** 3400
- **Nominal:** 2300
- **Enabled:** 80 cores, 2 chips
- **Orderable:** 1.2 chips
- **Cache L1:** 32 KB I + 48 KB D on chip per core
- **L2:** 1.25 MB I+D on chip per core
- **L3:** 60 MB I+D on chip per chip
- **Other:** None
- **Memory:** 512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R)
- **Storage:** 225 GB on tmpfs
- **Other:** None

### Software

- **OS:** Red Hat Enterprise Linux 8.3 (Ootpa)
- **Compiler:** C/C++: Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux;
  Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux;
  C/C++: Version 2021.1 of Intel C/C++ Compiler Classic Build 20201112 for Linux
- **Parallel:** Yes
- **Firmware:** Version 1.1.2 released Apr-2021
- **System State:** Run level 5 (graphical multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 64-bit
- **Other:** None
- **Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage

### Performance Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed®2017_fp_base</th>
<th>SPECspeed®2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>80</td>
<td>290</td>
<td></td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>80</td>
<td>204</td>
<td></td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>80</td>
<td>138</td>
<td></td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>80</td>
<td>175</td>
<td></td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>80</td>
<td>99.3</td>
<td></td>
</tr>
<tr>
<td>628.pop2_s</td>
<td>80</td>
<td>245</td>
<td></td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>80</td>
<td>114</td>
<td></td>
</tr>
<tr>
<td>644.nab_s</td>
<td>80</td>
<td>284</td>
<td></td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>80</td>
<td>546</td>
<td></td>
</tr>
<tr>
<td>654.roms_s</td>
<td>80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Notes:**
- Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.
Dell Inc.
PowerEdge R650 (Intel Xeon Platinum 8380, 2.30 GHz)

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>80</td>
<td>83.6</td>
<td>706</td>
<td>83.2</td>
<td>709</td>
<td>84.4</td>
<td>699</td>
<td>80</td>
<td>83.5</td>
<td>706</td>
<td>83.4</td>
<td>707</td>
<td>83.4</td>
<td>707</td>
<td></td>
<td></td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>80</td>
<td>57.5</td>
<td>290</td>
<td>57.4</td>
<td>290</td>
<td>57.2</td>
<td>291</td>
<td>80</td>
<td>57.5</td>
<td>290</td>
<td>57.4</td>
<td>290</td>
<td>57.2</td>
<td>291</td>
<td></td>
<td></td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>80</td>
<td>38.9</td>
<td>135</td>
<td>37.9</td>
<td>138</td>
<td>37.5</td>
<td>140</td>
<td>80</td>
<td>38.9</td>
<td>135</td>
<td>37.9</td>
<td>138</td>
<td>37.5</td>
<td>140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>80</td>
<td>65.2</td>
<td>203</td>
<td>64.6</td>
<td>205</td>
<td>64.9</td>
<td>204</td>
<td>80</td>
<td>66.3</td>
<td>200</td>
<td>66.2</td>
<td>200</td>
<td>66.4</td>
<td>199</td>
<td></td>
<td></td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>80</td>
<td>52.2</td>
<td>170</td>
<td>50.5</td>
<td>175</td>
<td>50.6</td>
<td>175</td>
<td>80</td>
<td>52.2</td>
<td>170</td>
<td>50.5</td>
<td>175</td>
<td>50.6</td>
<td>175</td>
<td></td>
<td></td>
</tr>
<tr>
<td>628.pop2_s</td>
<td>80</td>
<td>122</td>
<td>97.3</td>
<td>118</td>
<td>101</td>
<td>120</td>
<td>99.3</td>
<td>80</td>
<td>122</td>
<td>97.3</td>
<td>118</td>
<td>101</td>
<td>120</td>
<td>99.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>80</td>
<td>58.7</td>
<td>246</td>
<td>59.0</td>
<td>245</td>
<td>59.0</td>
<td>245</td>
<td>80</td>
<td>58.7</td>
<td>246</td>
<td>59.0</td>
<td>245</td>
<td>59.0</td>
<td>245</td>
<td></td>
<td></td>
</tr>
<tr>
<td>644.nab_s</td>
<td>80</td>
<td>36.6</td>
<td>477</td>
<td>36.7</td>
<td>476</td>
<td>36.6</td>
<td>477</td>
<td>80</td>
<td>32.0</td>
<td>545</td>
<td>31.9</td>
<td>548</td>
<td>32.0</td>
<td>546</td>
<td></td>
<td></td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>80</td>
<td>79.8</td>
<td>114</td>
<td>80.1</td>
<td>114</td>
<td>82.7</td>
<td>110</td>
<td>80</td>
<td>81.4</td>
<td>112</td>
<td>79.5</td>
<td>115</td>
<td>79.7</td>
<td>114</td>
<td></td>
<td></td>
</tr>
<tr>
<td>654.roms_s</td>
<td>80</td>
<td>56.5</td>
<td>279</td>
<td>55.4</td>
<td>284</td>
<td>54.7</td>
<td>288</td>
<td>80</td>
<td>56.5</td>
<td>279</td>
<td>55.4</td>
<td>284</td>
<td>54.7</td>
<td>288</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPECspeed®2017_fp_base = 228
SPECspeed®2017_fp_peak = 231

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

Operating System Notes
Stack size set to unlimited using "ulimit -s unlimited"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/mnt/ramdisk/cpu2017-1.1.5-ic2021.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.5-ic2021.1/je5.0.1-64"
MALLOCONF = "retain:true"
OMP_STACKSIZE = "192M"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Redhat Enterprise Linux 8.0
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

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

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

Dell Inc.
PowerEdge R650 (Intel Xeon Platinum 8380, 2.30 GHz)

SPECspeed®2017_fp_base = 228
SPECspeed®2017_fp_peak = 231

CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: Apr-2021
Tested by: Dell Inc.
Hardware Availability: May-2021
Software Availability: Feb-2021

General Notes (Continued)

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.

Benchmark run from a 225 GB ramdisk created with the cmd: "mount -t tmpfs -o size=225G tmpfs /mnt/ramdisk"

Platform Notes

BIOS Settings:
Logical Processor : Disabled
Virtualization Technology : Disabled
System Profile : Custom
CPU Power Management : Maximum Performance
C1E : Disabled
C States : Autonomous
Memory Patrol Scrub : Disabled
Energy Efficiency Policy : Performance
CPU Interconnect Bus Link Power Management : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.5-ic2021.1/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080af29a89d4b38e2f1c
running on localhost.localdomain Wed Apr 14 14:47:49 2021

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 8380 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 : 40
siblings : 40
  physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39
  physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

(Continued on next page)
Dell Inc.
PowerEdge R650 (Intel Xeon Platinum 8380, 2.30 GHz)

| SPECspeed\textsuperscript{2017\_fp\_base} = 228 |
| SPECspeed\textsuperscript{2017\_fp\_peak} = 231 |

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

### Platform Notes (Continued)

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:** 1
- **Core(s) per socket:** 40
- **Socket(s):** 2
- **NUMA node(s):** 2
- **Vendor ID:** GenuineIntel
- **CPU family:** 6
- **Model:** 106
- **Model name:** Intel(R) Xeon(R) Platinum 8380 CPU @ 2.30GHz
- **Stepping:** 6
- **CPU MHz:** 1856.902
- **BogoMIPS:** 4600.00
- **Virtualization:** VT-x
- **L1d cache:** 48K
- **L1i cache:** 32K
- **L2 cache:** 1280K
- **L3 cache:** 61440K

**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, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78

**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, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 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 rdtscp lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperffperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtrnr 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 invpcid_single intel_pinned ssmbd mba ibrs ibpb stibp ibrs_enhanced fsbservicet sc_adjust bmi1 hle avx2 smep bmi2 erms invpcid cmq rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha_ne aivx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cmq_llc cqm_occup_llc cqm_mbb_total cqm_mbb_local split_lock_detect whnoind dtherm ida arat pdn pts avx512vni umip pkpu avx512_vmbi2 gfnl vaes vcpulmulqdq avx512_vnni avx512_bitalg tme avx512_vvpctidq la57 rdpid md_clear pconfig flush_lid arch_capabilities

/proc/cpuinfo cache data
- **cache size:** 61440 KB

From `numactl --hardware` WARNING: a numactl 'node' might or might not correspond to a physical chip.

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

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 56 58 60 62 64 66 68 70 72 74 76 78
node 0 size: 243629 MB
node 0 free: 237917 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 57 59 61 63 65 67 69 71 73 75 77 79
node 1 size: 243562 MB
node 1 free: 253815 MB
node distances:
node 0 1
0: 10 20
1: 20 10

From /proc/meminfo
- MemTotal: 527805188 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/sbin/tuned-adm active
Current active profile: throughput-performance

From /etc/*release* /etc/*version*
- os-release:
  - NAME="Red Hat Enterprise Linux"
  - VERSION="8.3 (Ootpa)"
  - ID="rhel"
  - ID_LIKE="fedora"
  - VERSION_ID="8.3"
  - PLATFORM_ID="platform:el8"
  - PRETTY_NAME="Red Hat Enterprise Linux 8.3 (Ootpa)"
  - ANSI_COLOR="0;31"
- redhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
- system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
- system-release-cpe: cpe:/o:redhat:enterprise_linux:8.3:ga

uname -a:
Linux localhost.localdomain 4.18.0-240.15.1.el8_3.x86_64 #1 SMP Wed Feb 3 03:12:15 EST 2021 x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
- CVE-2018-12207 (iTLB Multihit): Not affected
- CVE-2018-3620 (L1 Terminal Fault): Not affected
- Microarchitectural Data Sampling: Not affected
- CVE-2017-5754 (Meltdown): Not affected
- CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store

(Continued on next page)
Dell Inc.
PowerEdge R650 (Intel Xeon Platinum 8380, 2.30 GHz)

SPEC speed®2017_fp_base = 228
SPEC speed®2017_fp_peak = 231

Platform Notes (Continued)

CVE-2017-5753 (Spectre variant 1):
Bypass disabled via prctl and seccomp
Mitigation: usercopy/swapsgs
barriers and __user pointer
sanitization

CVE-2017-5715 (Spectre variant 2):
Mitigation: Enhanced IBRS, IBPB:
conditional, RSB filling

CVE-2020-0543 (Special Register Buffer Data Sampling):
Not affected

CVE-2019-11135 (TSX Asynchronous Abort):
Not affected

run-level 5 Apr 14 10:49
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.5-ic2021.1

From /sys/devices/virtual/dmi/id
Vendor: Dell Inc.
Product: PowerEdge R650
Product Family: PowerEdge
Serial: 1234567

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.
Memory:
7x 00AD00B300AD HMMAA4GR7A JR8N-XN 32 GB 2 rank 3200
9x 00AD063200AD HMMAA4GR7A JR8N-XN 32 GB 2 rank 3200
16x Not Specified Not Specified

BIOS:
BIOS Vendor: Dell Inc.
BIOS Version: 1.1.2
BIOS Date: 04/09/2021
BIOS Revision: 1.1

(End of data from sysinfo program)

Compiler Version Notes
==============================================================================
C | 619.lbm_s(base, peak) 638.imagick_s(base, peak)
644.nab_s(base)
==============================================================================
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
## Compiler Version Notes (Continued)

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

<table>
<thead>
<tr>
<th>C</th>
<th>644.nab_s(peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C</th>
<th>619.lbm_s(base, peak) 638.imagick_s(base, peak) 644.nab_s(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C</th>
<th>644.nab_s(peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C++, C, Fortran</th>
<th>607.cactuBSSN_s(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fortran</th>
<th>603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak) 654.roms_s(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>

(Continued on next page)
Dell Inc.
PowerEdge R650 (Intel Xeon Platinum 8380, 2.30 GHz)

SPECspeed®2017_fp_base = 228
SPECspeed®2017_fp_peak = 231

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

Test Date: Apr-2021
Hardware Availability: May-2021
Software Availability: Feb-2021

Compiler Version Notes (Continued)

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

------------------------------------------------------------------
Fortran, C  | 621.wrf_s(base, peak) 627.cam4_s(base, peak)
            | 628.pop2_s(base, peak)
------------------------------------------------------------------

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

------------------------------------------------------------------

Base Compiler Invocation

C benchmarks:
icc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
ifort icc

Benchmarks using Fortran, C, and C++:
icpc icc ifort

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
   -assume byterecl
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64

(Continued on next page)
Dell Inc.
PowerEdge R650 (Intel Xeon Platinum 8380, 2.30 GHz)

SPECspeed®2017_fp_base = 228
SPECspeed®2017_fp_peak = 231

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

Test Date: Apr-2021
Hardware Availability: May-2021
Software Availability: Feb-2021

Base Portability Flags (Continued)

654.roms_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-m64 -std=c11 -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-mbranches-within-32B-boundaries

Fortran benchmarks:
-m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512 -ipo -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -qopenmp -nostandard-realloc-lhs
-mbranches-within-32B-boundaries -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc

Benchmarks using both Fortran and C:
-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp
-DSPEC_OPENMP -mbranches-within-32B-boundaries -nostandard-realloc-lhs
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Benchmarks using Fortran, C, and C++:
-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp
-DSPEC_OPENMP -mbranches-within-32B-boundaries -nostandard-realloc-lhs
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Peak Compiler Invocation

C benchmarks (except as noted below):
icc

644.nab_s: icx

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
ifort icc

(Continued on next page)
Spec CPU®2017 Floating Point Speed Result

Dell Inc.
PowerEdge R650 (Intel Xeon Platinum 8380, 2.30 GHz)

SPECSpeed®2017_fp_base = 228
SPECSpeed®2017_fp_peak = 231

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

Test Date: Apr-2021
Hardware Availability: May-2021
Software Availability: Feb-2021

Peak Compiler Invocation (Continued)

Benchmarks using Fortran, C, and C++:
icpc icc ifort

Peak Portability Flags
Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

619.lbm_s: basepeak = yes
638.imagick_s: basepeak = yes

644.nab_s: -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -fopenmp
-DSPEC_OPENMP -qopt-mem-layout-trans=4
-fimf-accuracy-bits=14:sqrt
-mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Fortran benchmarks:

603.bwaves_s: -m64 -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2)
-DSPEC_SUPPRESS_OPENMP -DSPEC_OPENMP -ipo -xCORE-AVX512
-03 -no-pref-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=4 -qopenmp -nostandard-realloc-lhs
-mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

649.fotonik3d_s: Same as 603.bwaves_s

654.roms_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf_s: -m64 -std=c11 -Wl,-z,muldefs -prof-gen(pass 1)
-prof-use(pass 2) -ipo -xCORE-AVX512 -03 -no-pref-div
-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP
-mbranches-within-32B-boundaries -nostandard-realloc-lhs

(Continued on next page)
Dell Inc.

PowerEdge R650 (Intel Xeon Platinum 8380, 2.30 GHz)

SPECspeed®2017_fp_base = 228
SPECspeed®2017_fp_peak = 231

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

Test Date: Apr-2021
Hardware Availability: May-2021
Software Availability: Feb-2021

Peak Optimization Flags (Continued)

621.wrf_s (continued):
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

627.cam4_s: basepeak = yes

628.pop2_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

607.cactuBSSN_s: basepeak = yes

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:
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml

SPEC CPU and SPECspeed 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 v1.1.5 on 2021-04-14 15:47:48-0400.
Originally published on 2021-05-18.