Dell Inc.

PowerEdge R740xd (Intel Xeon Gold 6256, 3.60 GHz)

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

SPECrate®2017_fp_base = 214
SPECrate®2017_fp_peak = 220

Test Date: Jul-2020
Hardware Availability: Jul-2020
Software Availability: Apr-2020

503.bwaves_r
507.cactuBSSN_r
508.namd_r
510.parest_r
511.povray_r
519.lbm_r
521.wrf_r
526.blender_r
527.cam4_r
538.imagick_r
541.nab_r
549.fotonik3d_r
554.roms_r

Hardware

CPU Name: Intel Xeon Gold 6256
Max MHz: 4500
Nominal: 3600
Enabled: 24 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: 33 MB I+D on chip per chip
Other: None
Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)
Storage: 1 x 1.92 TB SATA SSD
Other: None

Software

OS: Red Hat Enterprise Linux 8.1
kernel 4.18.0-147.el8.x86_64
Compiler: C/C++: Version 19.1.1.217 of Intel C/C++ Compiler for Linux;
Fortran: Version 19.1.1.217 of Intel Fortran Compiler for Linux
Compiler for Linux
Parallel: No
Firmware: Version 2.7.7 released May-2020
File System: tmpfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: None
Power Management: jemalloc memory allocator V5.0.1
BIOS set to prefer performance at the cost of additional power usage.
**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>
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<td>529</td>
<td>910</td>
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<td>225</td>
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<td>301</td>
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<td>235</td>
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<td>549.fotonik3d_r</td>
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<td>670</td>
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<td>24</td>
<td>300</td>
</tr>
</tbody>
</table>

**Compiler Notes**

The inconsistent Compiler version information under Compiler Version section is due to a discrepancy in Intel Compiler. The correct version of C/C++ compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux. The correct version of Fortran compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux.

**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"

**Environment Variables Notes**

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

```
LD_LIBRARY_PATH = 
"/mnt/ramdisk/cpu2017-ic19.1u1/lib/intel64:/mnt/ramdisk/cpu2017-ic19.1u1

/je5.0.1-64"

MALLOCONF = "retain:true"
```
### General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM
memory using Redhat Enterprise Linux 8.0
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.:
umactl --interleave=all runcpu <etc>
Benchmark run from a 225 GB ramdisk created with the cmd; "mount -t tmpfs -o size=225G tmpfs /mnt/ramdisk"
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

### Platform Notes

BIOS settings:
Sub NUMA Cluster enabled
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
Logical Processor enabled
CPU Interconnect Bus Link Power Management disabled
PCI ASPM L1 Link Power Management disabled
UPI Prefetch enabled
LLC Prefetch disabled
Dead Line LLC Alloc enabled
Directory AtoS disabled

Sysinfo program /mnt/ramdisk/cpu2017-ic19.1u1/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edbe6e46a485a0011
running on user-pc.spa.lab Mon Jul 20 13:41:05 2020

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

(Continued on next page)
Platform Notes (Continued)

From /proc/cpuinfo

model name : Intel(R) Xeon(R) Gold 6256 CPU @ 3.60GHz

2 "physical id"s (chips)
48 "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 : 12
siblings : 24
physical 0: cores 0 4 10 13 16 17 19 21 25 26 28 29
physical 1: cores 0 10 12 13 16 17 19 21 25 26 27 28

From lscpu:

Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 48
On-line CPU(s) list: 0-47
Thread(s) per core: 2
Core(s) per socket: 12
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6256 CPU @ 3.60GHz
Stepping: 7
CPU MHz: 4226.171
CPU max MHz: 4500.0000
CPU min MHz: 1200.0000
BogoMIPS: 7200.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 33792K
NUMA node0 CPU(s): 0,4,8,12,16,20,24,28,32,36,40,44
NUMA node1 CPU(s): 1,5,9,13,17,21,25,29,33,37,41,45
NUMA node2 CPU(s): 2,6,10,14,18,22,26,30,34,38,42,46
NUMA node3 CPU(s): 3,7,11,15,19,23,27,31,35,39,43,47
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
aperfmon pfni pclmulqdq dtse64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xtrn 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_pstate ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi

(Continued on next page)
Dell Inc.
PowerEdge R740xd (Intel Xeon Gold 6256, 3.60 GHz)

**SPEC CPU®2017 Floating Point Rate Result**

**SPECCrate®2017_fp_peak = 220**
**SPECCrate®2017_fp_base = 214**

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>55</th>
</tr>
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<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Dell Inc.</td>
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<td>Tested by:</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Test Date:</td>
<td>Jul-2020</td>
</tr>
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<td>Hardware Availability:</td>
<td>Jul-2020</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Apr-2020</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

```
flexpriority ept vpid fsparsebase 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 xsaveopt xsaves cqm_llc cqm_occmap llc cqm_mbm_total
cqm_mbb_local dtherm ida arat pln pts pku ospke avx512_vnni md_clear flush_l1d
arch_capabilities
```

```
/arch/cpuinfo cache data
cache size : 33792 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
node 0 size: 192073 MB
node 0 free: 191547 MB
node 1 cpus: 1 5 9 13 17 21 25 29 33 37 41 45
node 1 size: 193533 MB
node 1 free: 193220 MB
node 2 cpus: 2 6 10 14 18 22 26 30 34 38 42 46
node 2 size: 193533 MB
node 2 free: 193220 MB
node 3 cpus: 3 7 11 15 19 23 27 31 35 39 43 47
node 3 size: 193507 MB
node 3 free: 193239 MB
```

From `/proc/meminfo`
```
MemTotal:       791191324 kB
HugePages_Total:       0
Hugepagesize:       2048 kB
```

From `/etc/*release*` /etc/*version*
```
os-release:
   NAME="Red Hat Enterprise Linux"
   VERSION="8.1 (Ootpa)"
   ID="rhel"
   ID_LIKE="fedora"
   VERSION_ID="8.1"
   PLATFORM_ID="platform:el8"
   PRETTY_NAME="Red Hat Enterprise Linux 8.1 (Ootpa)"
   ANSI_COLOR="0;31"
redhat-release: Red Hat Enterprise Linux release 8.1 (Ootpa)
```

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

**PowerEdge R740xd (Intel Xeon Gold 6256, 3.60 GHz)**

<table>
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</tbody>
</table>

#### SPEC CPU 2017 Floating Point Rate Result

**SPECrate®2017_fp_base = 214**

**SPECrate®2017_fp_peak = 220**

---

**Platform Notes (Continued)**

```markdown
system-release: Red Hat Enterprise Linux release 8.1 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8.1:ga
```

```bash
uname -a:
Linux user-pc.spa.lab 4.18.0-147.el8.x86_64 #1 SMP Thu Sep 26 15:52:44 UTC 2019 x86_64	x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

- **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 Bypass disabled via prctl and seccomp
- **CVE-2017-5753 (Spectre variant 1):** Mitigation: usercopy/swapgs barriers and __user pointer sanitation
- **CVE-2017-5715 (Spectre variant 2):** Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling

```bash
run-level 3 Jul 20 09:25 last=5
```

**SPEC is set to: /mnt/ramdisk/cpu2017-ic19.1u1**

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>tmpfs</td>
<td>tmpfs</td>
<td>225G</td>
<td>4.3G</td>
<td>221G</td>
<td>2%</td>
<td>/mnt/ramdisk</td>
</tr>
</tbody>
</table>

From /sys/devices/virtual/dmi/id

- **BIOS:** Dell Inc. 2.7.7 05/04/2020
- **Vendor:** Dell Inc.
- **Product:** PowerEdge R740xd
- **Product Family:** PowerEdge
- **Serial:** F5BMCS2

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:**

- 19x 00AD00B300AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
- 1x 00AD063200AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
- 4x 00AD069D00AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933

(End of data from sysinfo program)
SPEC CPU®2017 Floating Point Rate Result

Dell Inc.

PowerEdge R740xd (Intel Xeon Gold 6256, 3.60 GHz)

SPECrate®2017_fp_base = 214
SPECrate®2017_fp_peak = 220

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Compiler Version Notes

==============================================================================
C               | 519.lbm_r(base, peak) 538.imagick_r(base, peak)
| 544.nab_r(base, peak)
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
  NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
==============================================================================
C++             | 508.namd_r(base, peak) 510.parest_r(base, peak)
------------------------------------------------------------------------------
Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1
  NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
==============================================================================
C++, C          | 511.povray_r(base) 526.blender_r(base, peak)
------------------------------------------------------------------------------
Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1
  NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
  NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
==============================================================================
C++, C          | 511.povray_r(peak)
------------------------------------------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.1.1.1217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.1.1.1217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
==============================================================================
C++, C          | 511.povray_r(base) 526.blender_r(base, peak)
------------------------------------------------------------------------------
Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1
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Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
  NextGen Build 20200304

(Continued on next page)
Dell Inc.

PowerEdge R740xd (Intel Xeon Gold 6256, 3.60 GHz)

SPECrate®2017_fp_base = 214
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CPU2017 License: 55
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Hardware Availability: Jul-2020
Software Availability: Apr-2020

Compiler Version Notes (Continued)

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==============================================================================
C++, C         | 511.povray_r(peak)
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
   Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
   Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

==============================================================================
C++, C, Fortran | 507.cactuBSSN_r(base, peak)
==============================================================================
Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1
   NextGen Build 20200304
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Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
   NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
   64, Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

==============================================================================
Fortran         | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak)
==============================================================================
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
   64, Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

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Fortran, C      | 521.wrf_r(base) 527.cam4_r(base, peak)
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(Continued on next page)
Compiler Version Notes (Continued)

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Fortran, C      | 521.wrf_r(peak)
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==============================================================================

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

(Continued on next page)
Dell Inc.  
PowerEdge R740xd (Intel Xeon Gold 6256, 3.60 GHz)  

<table>
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<tr>
<th>SPECrate® 2017_fp_base = 214</th>
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<tr>
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</tr>
</tbody>
</table>

**Base Compiler Invocation (Continued)**

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:  
-m64 -gnextgen -std=c11  
-W1, -plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs  
-fuse-ld=gold -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse  
-funroll-loops -qopt-mem-layout-trans=4  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

C++ benchmarks:  
-m64 -gnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries  
-Wl,-z,muldefs -fuse-ld=gold -xCORE-AVX512 -Ofast -ffast-math -flto  
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Fortran benchmarks:  
-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs

(Continued on next page)
### Base Optimization Flags (Continued)

For Fortran benchmarks (continued):
- `-fuse-ld=gold -xCORE-AVX512 -O3 -ipo -no-prec-div -qopt-prefetch`
- `-ffinite-math-only -qopt-multiple-gather-scatter-by-shuffles`
- `-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte`
- `-auto -mbranches-within-32B-boundaries`
- `-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

For benchmarks using both Fortran and C:
- `-m64 -qnextgen -std=c11`
- `-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs`
- `-fuse-ld=gold -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse`
- `-funroll-loops -qopt-mem-layout-trans=4 -O3 -ipo -no-prec-div`
- `-qopt-prefetch -ffinite-math-only`
- `-qopt-multiple-gather-scatter-by-shuffles -nostandard-realloc-lhs`
- `-align array32byte -auto -mbranches-within-32B-boundaries`
- `-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

For benchmarks using both C and C++:
- `-m64 -qnextgen -std=c11`
- `-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs`
- `-fuse-ld=gold -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse`
- `-funroll-loops -qopt-mem-layout-trans=4 -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

For benchmarks using Fortran, C, and C++:
- `-m64 -qnextgen -std=c11`
- `-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs`
- `-fuse-ld=gold -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse`
- `-funroll-loops -qopt-mem-layout-trans=4 -O3 -ipo -no-prec-div`
- `-qopt-prefetch -ffinite-math-only`
- `-qopt-multiple-gather-scatter-by-shuffles -nostandard-realloc-lhs`
- `-align array32byte -auto -mbranches-within-32B-boundaries`
- `-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

### Peak Compiler Invocation

**C benchmarks:**

- `icc`

**C++ benchmarks:**

- `icpc`

**Fortran benchmarks:**

- `ifort`

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

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

519.lbm_r: basepeak = yes
538.imagick_r: basepeak = yes
544.nab_r: basepeak = yes

C++ benchmarks:

508.namd_r: basepeak = yes
510.parest_r: -m64 -qnextgen
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -fuse-ld=gold -xCORE-AVX512 -Ofast
-ffast-math -fto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc

Fortran benchmarks:

503.bwaves_r: -m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -fuse-ld=gold -xCORE-AVX512 -O3 -ipo
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles

(Continued on next page)
## Peak Optimization Flags (Continued)

503.bwaves_r (continued):
-`-qopt-mem-layout-trans=4` `-nostandard-realloc-lhs`
-`-align array32byte` `-auto` `-mbranches-within-32B-boundaries`
-`-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

549.fotonik3d_r: `basepeak = yes`

554.roms_r: Same as 503.bwaves_r

### Benchmarks using both Fortran and C:

521.wrf_r: `-prof-gen(pass 1)` `-prof-use(pass 2)` `-xCORE-AVX512` `-O3`
-`-ipo` `-no-prec-div` `-qopt-prefetch` `-ffinite-math-only`
-`-qopt-multiple-gather-scatter-by-shuffles`
-`-qopt-mem-layout-trans=4` `-mbranches-within-32B-boundaries`
-`-nostandard-realloc-lhs` `-align array32byte` `-auto`
-`-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

527.cam4_r: `basepeak = yes`

### Benchmarks using both C and C++:

511.povray_r: `-prof-gen(pass 1)` `-prof-use(pass 2)` `-xCORE-AVX512` `-O3`
-`-ipo` `-no-prec-div` `-qopt-prefetch` `-ffinite-math-only`
-`-qopt-multiple-gather-scatter-by-shuffles`
-`-qopt-mem-layout-trans=4` `-mbranches-within-32B-boundaries`
-`-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

526.blender_r: `basepeak = yes`

### Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: `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-ic19.1u1-official-linux64_revA.xml

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