# SPEC CPU®2017 Floating Point Rate Result

## Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6248R, 3.00 GHz)

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</tr>
</tbody>
</table>

### Hardware
- **CPU Name:** Intel Xeon Gold 6248R
- **Max MHz:** 4000
- **Nominal:** 3000
- **Enabled:** 48 cores, 2 chips, 2 threads/core
- **Orderable:** 1,2 chips
- **Cache L1:** 32 KB I + 32 KB D on chip per core
- **Cache L2:** 1 MB I+D on chip per core
- **Cache L3:** 35.75 MB I+D on chip per chip
- **Memory:** 384 GB (10 x 32 GB 2Rx4 PC4-2933Y-R; 2 x 32 GB 2Rx4 PC4-3200AA-R, running at 2933)
- **Storage:** 1 x 960GB 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
- **Parallel:** No
- **Firmware:** Version 2.7.3 released Mar-2020
- **File System:** tmpfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 64-bit
- **Other:** jemalloc memory allocator V5.0.1
- **Power Management:** BIOS set to prefer performance at the cost of additional power usage
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## Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6248R, 3.00 GHz)

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

### SPECrate®2017_fp_base = 266

### SPECrate®2017_fp_peak = 284

### Test Date: May-2020
Hardware Availability: Feb-2020
Software Availability: Apr-2020

## Results Table

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### 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 = 
"/dev/shm/cpu2017-ic19.1u1/lib/intel64:/dev/shm/cpu2017-ic19.1u1/je5.0.1
-64"
MALLOC_CONF = "retain:true"
```
Dell Inc. PowerEdge C6420 (Intel Xeon Gold 6248R, 3.00 GHz) Dell Inc. SPECrate®2017_fp_peak = 284 SPECrate®2017_fp_base = 266

General Notes

Binaries compiled on a system with 1x Intel Core i9-9900K 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.:
numactl --interleave=all runcpu <etc>
Benchmark run from a 225 GB ramdisk created with the cmd; "mount -t tmpfs -o size=225G tmpfs /mnt/ramdisk"

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 /dev/shm/cpu2017-ic19.1ul1/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7ed7e6e46a485a0011 running on localhost.localdomain Tue Jun 23 19:47:43 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`

```plaintext
model name : Intel(R) Xeon(R) Gold 6248R CPU @ 3.00GHz
  2 "physical id"s (chips)
  96 "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 25 26 27 28 29
```

From `lscpu`:

```plaintext
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 96
On-line CPU(s) list: 0–95
Thread(s) per core: 2
Core(s) per socket: 24
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6248R CPU @ 3.00GHz
Stepping: 7
CPU MHz: 3522.341
CPU max MHz: 4000.0000
CPU min MHz: 1200.0000
BogoMIPS: 6000.00
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
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
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
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
```

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

PowerEdge C6420 (Intel Xeon Gold 6248R, 3.00 GHz)

**SPECrate**

- SPECrate\textsuperscript{\(\text{\textregistered}\)2017\_fp\_base = 266}
- SPECrate\textsuperscript{\(\text{\textregistered}\)2017\_fp\_peak = 284}

---

**CPU2017 License:** 55

**Test Sponsor:** Dell Inc.

**Tested by:** Dell Inc.

**Test Date:** May-2020

**Hardware Availability:** Feb-2020

**Software Availability:** Apr-2020

---

**Platform Notes (Continued)**

aperf pmpref pni pclmulqdq dtes64 monitor ds_cpi vmx smx est tm2 ssse3 sdbg fma cx16
xtrp pdcm pcd dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
avx f16c rdrand lahf_lm abnm 3dnowprefetch cpuid fault epb cat_13 cdp_13
invcpl_single intel_pinn ssbd mba ibrs ibpb stibp ibrs\_enhanced tpr\_shadow vnmi
flexpriority ept vpid fsqgbase tsc\_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtmt
cmq mpx rdt\_a avx512f avx512dq rdseed adx smap clflushopt clwb intel\_pt avx512cd
avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cmq l1c cmq\_occup\_l1c cmq\_mbm\_total
cmq\_mbm\_local dtherm ida arat pln pts pku ospke avx512\_vnmi md\_clear 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.

<table>
<thead>
<tr>
<th>Node</th>
<th>CPUs</th>
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<th>Free</th>
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<tbody>
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<td>0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92</td>
<td>95304 MB</td>
<td>85250 MB</td>
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<tr>
<td>1</td>
<td>1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89 93</td>
<td>96737 MB</td>
<td>96444 MB</td>
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<tr>
<td>2</td>
<td>2 6 10 14 18 22 26 30 34 38 42 46 50 54 58 62 66 70 74 78 82 86 90 94</td>
<td>96763 MB</td>
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<tr>
<td>3</td>
<td>3 7 11 15 19 23 27 31 35 39 43 47 51 55 59 63 67 71 75 79 83 87 91 95</td>
<td>96762 MB</td>
<td>96513 MB</td>
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From /proc/meminfo

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<tr>
<th>MemTotal:</th>
<th>394821696 kB</th>
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<tr>
<td>HugePages_Total:</td>
<td>0</td>
</tr>
<tr>
<td>Hugepagesize:</td>
<td>2048 kB</td>
</tr>
</tbody>
</table>

From /etc/*release* /etc/*version*

<table>
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<tr>
<th>os-release</th>
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<tbody>
<tr>
<td>NAME=&quot;Red Hat Enterprise Linux&quot;</td>
</tr>
<tr>
<td>VERSION=&quot;8.1 (Ootpa)&quot;</td>
</tr>
<tr>
<td>ID=&quot;rhel&quot;</td>
</tr>
<tr>
<td>ID_LIKE=&quot;fedora&quot;</td>
</tr>
<tr>
<td>VERSION_ID=&quot;8.1&quot;</td>
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(Continued on next page)
SPEC CPU®2017 Floating Point Rate Result

Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6248R, 3.00 GHz)

SPECRate®2017_fp_base = 266
SPECRate®2017_fp_peak = 284

CPU2017 License: 55
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Tested by: Dell Inc.

Test Date: May-2020
Hardware Availability: Feb-2020
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Platform Notes (Continued)

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

uname -a:
Linux localhost.localdomain 4.18.0-147.el8.x86_64 #1 SMP Thu Sep 26 15:52:44 UTC 2019
x86_64 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 sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling

run-level 3 Jun 23 14:07

SPEC is set to: /dev/shm/cpu2017-ic19.1u1
Filesystem Type Size Used Avail Use% Mounted on
 tmpfs tmpfs 189G 4.2G 185G 3% /dev/shm

From /sys/devices/virtual/dmi/id
BIOS: Dell Inc. 2.7.3 03/25/2020
Vendor: Dell Inc.
Product: PowerEdge C6420
Product Family: PowerEdge

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:
6x 00AD00B300AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
1x 00AD063200AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
2x 00AD063200AD HMA84GR7CJR4N-XN 32 GB 2 rank 3200
3x 00AD069D00AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
4x Not Specified Not Specified

(End of data from sysinfo program)
Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6248R, 3.00 GHz)

SPECrater®2017_fp_base = 266

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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.            |
------------------------------------------------------------------------------

==============================================================================
| 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.            |
------------------------------------------------------------------------------

==============================================================================
| 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.            |
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(Continued on next page)
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PowerEdge C6420 (Intel Xeon Gold 6248R, 3.00 GHz)  

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<th>CPU2017 License: 55</th>
<th>Test Date: May-2020</th>
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<td>Test Sponsor: Dell Inc.</td>
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**SPECrate®2017_fp_base = 266**  
**SPECrate®2017_fp_peak = 284**

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**Compiler Version Notes (Continued)**

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<table>
<thead>
<tr>
<th>C++, C</th>
<th>511.povray_r(peak)</th>
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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.

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<th>C++, C, Fortran</th>
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Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1  
NextGen Build 20200304  
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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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<table>
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<tr>
<th>Fortran, C</th>
<th>521.wrf_r(base) 527.cam4_r(base, peak)</th>
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Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)  
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Compiler Version Notes (Continued)

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Fortran, C      | 521.wrf_r(peak)
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Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
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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.
==============================================================================

Fortran, C      | 521.wrf_r(peak)
==============================================================================
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
  64, Version 19.1.1.217 Build 20200306
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Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.1.1.217 Build 20200306
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==============================================================================

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

(Continued on next page)
Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6248R, 3.00 GHz)

SPEC CPU®2017 Floating Point Rate Result

SPECRate®2017_fp_base = 266
SPECRate®2017_fp_peak = 284

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

Test Date: May-2020
Hardware Availability: Feb-2020
Software Availability: Apr-2020

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.cactusBSSN_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 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-ffuse-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 -qnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -ffuse-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

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Dell Inc.  

PowerEdge C6420 (Intel Xeon Gold 6248R, 3.00 GHz)  

SPECrater®2017_fp_base = 266  
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</table>

### Base Optimization Flags (Continued)

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

**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`

**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`

**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)
Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6248R, 3.00 GHz)

Dell Inc.

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

Test Date: May-2020
Hardware Availability: Feb-2020
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SPECrate®2017_fp_base = 266
SPECrate®2017_fp_peak = 284

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

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# Dell Inc. PowerEdge C6420 (Intel Xeon Gold 6248R, 3.00 GHz)

<table>
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- **Test Sponsor:** Dell Inc.
- **Test Date:** May-2020
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- **Software Availability:** Apr-2020

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## 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` `-03`
- `-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` `-03`
- `-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.cactusBSSN_r: `basepeak = yes`

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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:

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