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

*Copyright 2017-2020 Standard Performance Evaluation Corporation*

**Dell Inc.**  
(Test Sponsor: Dell Inc)  
PowerEdge MX740c (Intel Xeon Gold 6258R, 2.70 GHz)

**SPECrate®2017_fp_base = 290**  
**SPECrate®2017_fp_peak = 310**

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
</table>
| OS: Red Hat Enterprise Linux 8.2  
kernl 4.18-0-193.el8.x86_64 | CPU Name: Intel Xeon Gold 6258R  
Max MHz: 4000  
Nominal: 2700 |
| 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 | Enabled: 56 cores, 2 chips, 2 threads/core  
Orderable: 1,2 chips |
| Parallel: No | Cache L1: 32 KB I + 32 KB D on chip per core  
L2: 1 MB I+D on chip per core  
L3: 38.5 MB I+D on chip per chip | Cache L1: 32 KB I + 32 KB D on chip per core  
L2: 1 MB I+D on chip per core  
L3: 38.5 MB I+D on chip per chip |
| Firmware: Version 2.9.1 released Aug-2020 | Other: None |
| System State: Run level 3 (multi-user) | Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)  
Storage: 1 x 960 GB SATA SSD |
| Power Management: BIOS set to prefer performance at the cost of additional power usage | Other: None |

**CPU2017 License:** 55  
**Test Date:** Sep-2020  
**Test Sponsor:** Dell Inc  
**Hardware Availability:** Apr-2020  
**Tested by:** Dell Inc.  
**Software Availability:** Apr-2020
## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>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>112</td>
<td>2128</td>
<td>528</td>
<td><strong>2147</strong></td>
<td><strong>523</strong></td>
<td>56</td>
<td>1044</td>
<td>538</td>
<td><strong>1045</strong></td>
<td>537</td>
<td><strong>1045</strong></td>
<td>537</td>
<td></td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>112</td>
<td><strong>338</strong></td>
<td>420</td>
<td>337</td>
<td>421</td>
<td>112</td>
<td><strong>338</strong></td>
<td>420</td>
<td>337</td>
<td>421</td>
<td>337</td>
<td>421</td>
<td></td>
</tr>
<tr>
<td>508.namd_r</td>
<td>112</td>
<td>398</td>
<td>267</td>
<td><strong>400</strong></td>
<td><strong>266</strong></td>
<td>112</td>
<td>398</td>
<td>267</td>
<td><strong>400</strong></td>
<td><strong>266</strong></td>
<td><strong>400</strong></td>
<td><strong>266</strong></td>
<td></td>
</tr>
<tr>
<td>510.parest_r</td>
<td>112</td>
<td>2190</td>
<td>134</td>
<td><strong>2195</strong></td>
<td><strong>133</strong></td>
<td>56</td>
<td><strong>783</strong></td>
<td>187</td>
<td>781</td>
<td>187</td>
<td>781</td>
<td>187</td>
<td></td>
</tr>
<tr>
<td>511.povray_r</td>
<td>112</td>
<td><strong>677</strong></td>
<td><strong>386</strong></td>
<td>676</td>
<td>387</td>
<td>112</td>
<td>573</td>
<td>456</td>
<td><strong>577</strong></td>
<td><strong>453</strong></td>
<td><strong>577</strong></td>
<td><strong>453</strong></td>
<td></td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>112</td>
<td>903</td>
<td>131</td>
<td><strong>903</strong></td>
<td><strong>131</strong></td>
<td>112</td>
<td>903</td>
<td>131</td>
<td><strong>903</strong></td>
<td><strong>131</strong></td>
<td><strong>903</strong></td>
<td><strong>131</strong></td>
<td></td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>112</td>
<td>1057</td>
<td>237</td>
<td>1053</td>
<td>238</td>
<td>56</td>
<td>457</td>
<td>274</td>
<td><strong>458</strong></td>
<td><strong>274</strong></td>
<td><strong>458</strong></td>
<td><strong>274</strong></td>
<td></td>
</tr>
<tr>
<td>526.blender_r</td>
<td>112</td>
<td><strong>510</strong></td>
<td><strong>334</strong></td>
<td>510</td>
<td>334</td>
<td>112</td>
<td><strong>510</strong></td>
<td><strong>334</strong></td>
<td>510</td>
<td>334</td>
<td>510</td>
<td>334</td>
<td></td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>112</td>
<td><strong>568</strong></td>
<td><strong>345</strong></td>
<td>567</td>
<td>346</td>
<td>112</td>
<td><strong>568</strong></td>
<td><strong>345</strong></td>
<td>567</td>
<td>346</td>
<td>567</td>
<td>346</td>
<td></td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>112</td>
<td>308</td>
<td>904</td>
<td><strong>308</strong></td>
<td><strong>904</strong></td>
<td>112</td>
<td>308</td>
<td>904</td>
<td><strong>308</strong></td>
<td><strong>904</strong></td>
<td><strong>308</strong></td>
<td><strong>904</strong></td>
<td></td>
</tr>
<tr>
<td>544.nab_r</td>
<td>112</td>
<td><strong>318</strong></td>
<td><strong>593</strong></td>
<td>316</td>
<td>596</td>
<td>112</td>
<td><strong>318</strong></td>
<td><strong>593</strong></td>
<td>316</td>
<td>596</td>
<td>316</td>
<td>596</td>
<td></td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>112</td>
<td><strong>2562</strong></td>
<td><strong>170</strong></td>
<td>2548</td>
<td>171</td>
<td>112</td>
<td><strong>2562</strong></td>
<td><strong>170</strong></td>
<td>2548</td>
<td>171</td>
<td>2548</td>
<td>171</td>
<td></td>
</tr>
<tr>
<td>554.roms_r</td>
<td>112</td>
<td>1695</td>
<td>105</td>
<td><strong>1697</strong></td>
<td><strong>105</strong></td>
<td>56</td>
<td><strong>700</strong></td>
<td>127</td>
<td>696</td>
<td>128</td>
<td>696</td>
<td>128</td>
<td></td>
</tr>
</tbody>
</table>

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

## 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"
```
**SPEC CPU®2017 Floating Point Rate Result**

**Test Sponsor:** Dell Inc

**PowerEdge MX740c (Intel Xeon Gold 6258R, 2.70 GHz)**

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base = 290</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_fp_peak = 310</td>
</tr>
</tbody>
</table>

**Test Sponsor:** Dell Inc

**Hardware Availability:** Apr-2020

**Software Availability:** Apr-2020

---

**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.:

```
numactl --interleave=all runcpu <etc>
```

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
- Memory Patrol Scrub set to standard
- 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-ic19.1u1/bin/sysinfo

Rev: r6365 of 2019-08-21 295195f888a3d7ed81e6e46a485a0011

running on localhost.localdomain Sat Sep 5 18:42:12 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 6258R CPU @ 2.70GHz
    2 "physical id"s (chips)
    112 "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 : 28
    siblings : 56
    physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
               28 29 30
    physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
               28 29 30

From lscpu:

    Architecture:        x86_64
    CPU op-mode(s):      32-bit, 64-bit
    Byte Order:          Little Endian
    CPU(s):              112
    On-line CPU(s) list: 0-111
    Thread(s) per core:  2
    Core(s) per socket:  28
    Socket(s):           2
    NUMA node(s):        4
    Vendor ID:           GenuineIntel
    CPU family:          6
    Model:               85
    Model name:          Intel(R) Xeon(R) Gold 6258R CPU @ 2.70GHz
    Stepping:            7
    CPU MHz:             3441.057
    CPU max MHz:         4000.0000
    CPU min MHz:         1000.0000
    BogoMIPS:            5400.00
    Virtualization:      VT-x
    L1d cache:           32K
    L1i cache:           32K
    L2 cache:            1024K
    L3 cache:            39424K
    NUMA node0 CPU(s):
    0,4,8,12,16,20,24,28,32,36,40,44,48,52,56,60,64,68,72,76,80,84,88,92,96,100,104,108
    NUMA node1 CPU(s):
    1,5,9,13,17,21,25,29,33,37,41,45,49,53,57,61,65,69,73,77,81,85,89,93,97,101,105,109
    NUMA node2 CPU(s):
    2,6,10,14,18,22,26,30,34,38,42,46,50,54,58,62,66,70,74,78,82,86,90,94,98,102,106,110
    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

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

Test Sponsor: Dell Inc

PowerEdge MX740c (Intel Xeon Gold 6258R, 2.70 GHz)

SPECrate®2017_fp_base = 290
SPECrate®2017_fp_peak = 310

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

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

Platform Notes (Continued)

```
lm constant_tsc art arch_perfmon pebs bts rep_good noopl xtopology nonstop_tsc cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpre pdcm pcd dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3 invpcid_single intel_pinn ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vmni flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erts invpcid rtm cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsaves xgetbv1 xsavec xgetbv mftmull vptp_vl vopmask fma4 vfmadd132dd vfmadd132pd xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbb_total cqm_mbb_local dtherm ida arat pln pts pku ospke avx512_vnni md_clear flush_l1d arch_capabilities
```

/platforms/cpuinfo cache data
  cache size : 39424 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 96 100 104 108
node 0 size: 192069 MB
node 0 free: 191610 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 97 101 105 109
node 1 size: 193502 MB
node 1 free: 193185 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 98 102 106 110
node 2 size: 193529 MB
node 2 free: 193239 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 99 103 107 111
node 3 size: 193529 MB
node 3 free: 183623 MB
node distances:
  node 0 node 1 node 2 node 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: 791173672 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
  os-release:

(Continued on next page)
Platform Notes (Continued)

NAME="Red Hat Enterprise Linux"
VERSION="8.2 (Ootpa)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="8.2"
PLATFORM_ID="platform:el8"
PRETTY_NAME="Red Hat Enterprise Linux 8.2 (Ootpa)"
ANSI_COLOR="0;31"
redhat-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
system-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8.2:ga

uname -a:
Linux localhost.localdomain 4.18.0-193.el8.x86_64 #1 SMP Fri Mar 27 14:35:58 UTC 2020
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

itlb_multihit: KVM: Vulnerable
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
tsx_async_abort: Mitigation: Clear CPU buffers; SMT vulnerable

run-level 3 Sep 5 12:55

SPEC is set to: /dev/shm/cpu2017-ic19.1u1
Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 378G 4.3G 374G 2% /dev/shm

From /sys/devices/virtual/dmi/id
BIOS: Dell Inc. 2.9.1 08/09/2020
Vendor: Dell Inc.
Product: PowerEdge MX740c
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.

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

Dell Inc.
(Test Sponsor: Dell Inc)
PowerEdge MX740c (Intel Xeon Gold 6258R, 2.70 GHz)

SPECrate®2017_fp_base = 290
SPECrate®2017_fp_peak = 310

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

Platform Notes (Continued)

Memory:
21x 00AD00B300AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
1x 00AD063200AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
2x 00AD069D00AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
<table>
<thead>
<tr>
<th>C</th>
<th>519.ibm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1</td>
<td></td>
</tr>
<tr>
<td>NextGen Build 20200304</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>508.namd_r(base, peak) 510.parest_r(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1</td>
<td></td>
</tr>
<tr>
<td>NextGen Build 20200304</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</th>
<th>511.povray_r(base) 526.blender_r(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1</td>
<td></td>
</tr>
<tr>
<td>NextGen Build 20200304</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
<tr>
<td>Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1</td>
<td></td>
</tr>
<tr>
<td>NextGen Build 20200304</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</th>
<th>511.povray_r(peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
<tr>
<td>Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306</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)
## Compiler Version Notes (Continued)

<table>
<thead>
<tr>
<th>C++, C</th>
<th>511.povray_r(base) 526.blender_r(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1 NextGen Build 20200304</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
<tr>
<td>Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1 NextGen Build 20200304</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</th>
<th>511.povray_r(peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
<tr>
<td>Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306</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>507.cactuBSSN_r(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1 NextGen Build 20200304</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
<tr>
<td>Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1 NextGen Build 20200304</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>503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>
Compiler Version Notes (Continued)

Fortran, C  |  521.wrf_r(base) 527.cam4_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.
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
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) C 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, C  |  521.wrf_r(base) 527.cam4_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.
Intel(R) C Compiler for applications running on Intel(R) 64, Version 19.1.1.217 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
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) C Compiler for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Dell Inc.
(Test Sponsor: Dell Inc)
PowerEdge MX740c (Intel Xeon Gold 6258R, 2.70 GHz)

SPEC®CPU2017 Floating Point Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

SPECrate®2017_fp_base = 290
SPECrate®2017_fp_peak = 310

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

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

Base Compiler Invocation

C benchmarks:
iccc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

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 -mnextgen -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 -gopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

(Continued on next page)
Dell Inc.  
(Test Sponsor: Dell Inc)  
PowerEdge MX740c (Intel Xeon Gold 6258R, 2.70 GHz)  

**SPEC CPU®2017 Floating Point Rate Result**  
Copyright 2017-2020 Standard Performance Evaluation Corporation  

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base</th>
<th>290</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_fp_peak</td>
<td>310</td>
</tr>
</tbody>
</table>

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

### Test Date: Sep-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Apr-2020

---

**Base Optimization Flags (Continued)**

- **C++ benchmarks:**
  - `-m64 -qnextgen -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`  
  - `-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`

- **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`
Dell Inc.  
(Test Sponsor: Dell Inc)
PowerEdge MX740c (Intel Xeon Gold 6258R, 2.70 GHz)

SPECrate®2017_fp_base = 290
SPECrate®2017_fp_peak = 310

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

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

Peak Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

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
-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

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

Fortran benchmarks:


549.fotonik3d_r: basepeak = yes

554.roms_r: Same as 503.bwaves_r

Benchmarks using both Fortran and C:


527.cam4_r: basepeak = yes

Benchmarks using both C and C++:


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

## SPEC CPU®2017 Floating Point Rate Result

**Dell Inc.**  
(Test Sponsor: Dell Inc)  
PowerEdge MX740c (Intel Xeon Gold 6258R, 2.70 GHz)  

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base</th>
<th>SPECrate®2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>290</td>
<td>310</td>
</tr>
</tbody>
</table>

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

**Test Date:** Sep-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Apr-2020

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


SPEC CPU and SPECrate 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 v1.1.0 on 2020-09-05 18:42:12-0400.  
Originally published on 2020-09-29.