### Dell Inc.

**PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)**

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base</th>
<th>SPECrate®2017_fp_peak</th>
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<tbody>
<tr>
<td>51.4</td>
<td>54.7</td>
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**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test Date:** Sep-2021  
**Hardware Availability:** Oct-2021  
**Software Availability:** May-2021

### Hardware

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<td>508.namd_r</td>
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</tr>
<tr>
<td>554.roms_r</td>
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<td>16.8</td>
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</tbody>
</table>

### CPU Name:

Intel Xeon E-2386G  
**Max MHz:** 5100  
**Nominal:** 3500  
**Enabled:** 6 cores, 1 chip, 2 threads/core  
**Orderable:** 1 chip  
**Cache L1:** 32 KB I + 48 KB D on chip per core  
**L2:** 512 KB I+D on chip per core  
**L3:** 12 MB I+D on chip per chip  
**Other:** None  
**Memory:** 64 GB (2 x 32 GB 2Rx8 PC4-3200AA-E)  
**Storage:** 70 GB on tmpfs  
**Other:** None

### Software

**OS:** Red Hat Enterprise Linux 8.4 (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;  
**Parallel:** No  
**Firmware:** Version 1.0.1 released Aug-2021  
**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 and OS set to prefer performance at the cost of additional power usage.
SPEC CPU®2017 Floating Point Rate Result

Dell Inc.
PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)

SPECrater®2017_fp_base = 51.4
SPECrater®2017_fp_peak = 54.7

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

Results Table

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</table>

SPECrater®2017_fp_base = 51.4
SPECrater®2017_fp_peak = 54.7

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

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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/cpu2017-1.1.8-ic2021.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.8-ic2021.1/jc5.0.1-64"

MALLOC_CONF = "retain:true"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Red Hat Enterprise Linux 8.1
Transparent Huge Pages enabled by default

(Continued on next page)
Dell Inc.  
PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)  

SPEC CPU®2017 Floating Point Rate Result

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Dell Inc.  
PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)  

SPECrate®2017_fp_base = 51.4  
SPECrate®2017_fp_peak = 54.7

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

General Notes (Continued)

Prior to runcpu invocation
Filesystem page cache synced and cleared with:
    sync; echo 3>/proc/sys/vm/drop_caches
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

Benchmark run from a 70 GB ramdisk created with the cmd: "mount -t tmpfs -o size=70G tmpfs /mnt/ramdisk"

Platform Notes

BIOS settings:
    Virtualization Technology : Disabled
    System Profile : Custom
    CPU Power Management : Maximum Performance
        C1E : Disabled
    C States : Autonomous
    PCI ASPM L1 Link
    Power Management : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.8-ic2021.1/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acaf64d
running on localhost.localdomain Fri Sep  3 04:21:22 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) E-2386G CPU @ 3.50GHz
        1 "physical id"s (chips)
        12 "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 : 6
        siblings : 12
        physical 0: cores 0 1 2 3 4 5

    (Continued on next page)
Dell Inc. PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)

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

SPECrate®2017_fp_base = 51.4
SPECrate®2017_fp_peak = 54.7

Test Date: Sep-2021
Hardware Availability: Oct-2021
Software Availability: May-2021

Platform Notes (Continued)

From lscpu from util-linux 2.32.1:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 12
On-line CPU(s) list: 0-11
Thread(s) per core: 2
Core(s) per socket: 6
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel
CPU family: 6
Model: 167
Model name: Intel(R) Xeon(R) E-2386G CPU @ 3.50GHz
BIOS Model name: Intel(R) Xeon(R) E-2386G CPU @ 3.50GHz
Stepping: 1
CPU MHz: 4700.000
BogoMIPS: 7008.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 512K
L3 cache: 12288K
NUMA node0 CPU(s): 0-11

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 rdtsdp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid
aperfmpref tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3
sdbg fma cx16 xtrunc pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer
aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault invpcid_single ssbd
ibrs ibpb stibp ibrs_enhanced fsgsbase tsc_adjust bmi1 avx2 smep bmi2 erms invpcid
mpx avx512f avx512dq rdseed adx smap avx512ifma clflushoptintel_pt avx512cd sha_ni
avx512bw avx512vl xsaveopt xsavec xgetbv1 xsavev dtherm ida arat pln pts avx512vbm
umip kpti oskpe avx512_vbmi2 gfn vaes vclmulqdq avx512_vnni avx512_bitalg
avx512_vpopcntdq rdpid fsrmd_clear flush_l1d arch_capabilities

//proc/cpuinfo cache data
 cache size: 12288 KB

From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 1 nodes (0)
 node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11
 node 0 size: 64285 MB
 node 0 free: 44320 MB

(Continued on next page)
Dell Inc.

PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)

SPECrate®2017_fp_base = 51.4
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CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: Sep-2021
Tested by: Dell Inc.
Hardware Availability: Oct-2021
Software Availability: May-2021

Platform Notes (Continued)

node distances:
node 0
  0: 10

From /proc/meminfo
  MemTotal: 65828584 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="8.4 (Ootpa)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="8.4"
    PLATFORM_ID="platform:el8"
    PRETTY_NAME="Red Hat Enterprise Linux 8.4 (Ootpa)"
    ANSI_COLOR="0;31"
  redhat-release: Red Hat Enterprise Linux release 8.4 (Ootpa)
  system-release: Red Hat Enterprise Linux release 8.4 (Ootpa)
  system-release-cpe: cpe:/o:redhat:enterprise_linux:8.4:ga

uname -a:
  Linux localhost.localdomain 4.18.0-305.el8.x86_64 #1 SMP Thu Apr 29 08:54:30 EDT 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 Bypass disabled via prctl and seccomp
CVE-2017-5753 (Spectre variant 1): 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

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

Dell Inc.

PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)

SPECrates®2017_fp_base = 51.4
SPECrates®2017_fp_peak = 54.7

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

Test Date: Sep-2021
Hardware Availability: Oct-2021
Software Availability: May-2021

Platform Notes (Continued)

run-level 3 Sep 3 00:29

SPEC is set to: /mnt/ramdisk/cpu2017-1.1.8-ic2021.1
Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 70G 15G 56G 21% /mnt/ramdisk

From /sys/devices/virtual/dmi/id
Vendor: Dell Inc.
Product: PowerEdge T350
Product Family: PowerEdge

Additional information from dmidecode 3.2 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:
2x 00AD00000C01 HMAA4GU7CJR8N-XN 32 GB 2 rank 3200

BIOS:
BIOS Vendor: Dell Inc.
BIOS Version: 1.0.1
BIOS Date: 08/18/2021
BIOS Revision: 1.0

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
| C               | 519.lbm_r(base, peak) 538.imagick_r(base, peak) |
|                 | 544.nab_r(base, peak) |
==============================================================================

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113
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==============================================================================

C++

==============================================================================
| C++              | 508.namd_r(base, peak) 510.parest_r(base, peak) |
===============================================================================

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==============================================================================

(Continued on next page)
Dell Inc.
PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)

SPECratology 2017 Floating Point Rate Result

SPECratology®2017_fp_base = 51.4
SPECratology®2017_fp_peak = 54.7

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

Test Date: Sep-2021
Hardware Availability: Oct-2021
Software Availability: May-2021

Compiler Version Notes (Continued)

C++, C          | 511.povray_r(peak)

Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
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Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
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Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
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Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113
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C++, C          | 511.povray_r(base) 526.blender_r(base, peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
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C++, C          | 511.povray_r(peak)

Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
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Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
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C++, C          | 511.povray_r(base) 526.blender_r(base, peak)

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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113
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C++, C, Fortran | 507.cactuBSSN_r(base, peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
**Dell Inc.**

**PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)**

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### Compiler Version Notes (Continued)

Version 2021.1 Build 20201113  
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Intel (R) oneAPI DPC++/C++ Compiler for applications running on Intel (R) 64,  
Version 2021.1 Build 20201113  
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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.

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**Fortran**  
| 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base, peak)

---

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Intel (R) 64, Version 2021.1 Build 20201112_000000  
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**Fortran, C**  
| 521.wrf_r(peak)

---

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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  
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---

**Fortran, C**  
| 521.wrf_r(base) 527.cam4_r(base, peak)

---

**Intel (R) Fortran Intel (R) 64 Compiler Classic for applications running on**  
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**Fortran, C**  
| 521.wrf_r(base) 527.cam4_r(base, peak)

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---

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

---

**Intel (R) Fortran Intel (R) 64 Compiler Classic for applications running on**  
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*Continued on next page*
## Dell Inc.

**PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)**

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### SPEC CPU®2017 Floating Point Rate Result

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

### Compiler Version Notes (Continued)

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.

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Fortran, C      | 521.wrf_r(base) 527.cam4_r(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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

---

### Base Compiler Invocation

**C benchmarks:**
- icx

**C++ benchmarks:**
- icpx

**Fortran benchmarks:**
- ifort

**Benchmarks using both Fortran and C:**
- ifort icx

**Benchmarks using both C and C++:**
- icpx icx

**Benchmarks using Fortran, C, and C++:**
- icpx icx 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

(Continued on next page)
Dell Inc.  

PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)  

SPEC CPU®2017 Floating Point Rate Result  

Copyright 2017-2021 Standard Performance Evaluation Corporation  

SPECrate®2017_fp_base = 51.4  
SPECrate®2017_fp_peak = 54.7  

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

Base Portability Flags (Continued)  

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:  
-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math  
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
-mbranches-within-32B-boundaries -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib  

C++ benchmarks:  
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto  
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
-mbranches-within-32B-boundaries -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib  

Fortran benchmarks:  
-w -m64 -Wl,-z,muldefs -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 -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib  

Benchmarks using both Fortran and C:  
-w -m64 -std=c11 -Wl,-z,muldefs -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  
-mbranches-within-32B-boundaries -nostandard-realloc-lhs  
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib  

Benchmarks using both C and C++:  
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math  
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
-mbranches-within-32B-boundaries -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib  

(Continued on next page)
Dell Inc.  
PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)  

| SPECrate®2017_fp_base = 51.4 |
| SPECrate®2017_fp_peak = 54.7 |

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

| Test Date: Sep-2021 |
| Hardware Availability: Oct-2021 |
| Software Availability: May-2021 |

### Base Optimization Flags (Continued)

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

### Peak Compiler Invocation

C benchmarks:  
- `icx`

C++ benchmarks:  
- `icpx`

Fortran benchmarks:  
- `ifort`

Benchmarks using both Fortran and C:  
- `521.wrf_r: ifort icc`
- `527.cam4_r: ifort icx`

Benchmarks using both C and C++:  
- `511.povray_r: icpc icc`
- `526.blender_r: icpx icx`

Benchmarks using Fortran, C, and C++:  
- `icpx icx ifort`

### Peak Portability Flags

Same as Base Portability Flags
Dell Inc.  
PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)  

SPEC CPU®2017 Floating Point Rate Result  
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SPECrate®2017_fp_base = 51.4  
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Dell Inc.  
PowerEdge T350 (Intel Xeon E-2386G, 3.50 GHz)  

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

Peak Optimization Flags  

C benchmarks:  
519.lbm_r: basepeak = yes  
538.imagick_r: basepeak = yes  

C++ benchmarks:  
508.namd_r: basepeak = yes  

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  

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

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


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
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-ICX-rev1.4.xml

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.