## SPEC CPU®2017 Floating Point Rate Result

**Dell Inc.**  
PowerEdge R750 (Intel Xeon Platinum 8362, 2.80 GHz)

<table>
<thead>
<tr>
<th>Copies</th>
<th>503.bwaves_r</th>
<th>507.cactuBSSN_r</th>
<th>508.namd_r</th>
<th>510.parest_r</th>
<th>511.povray_r</th>
<th>519.lbm_r</th>
<th>521.wrf_r</th>
<th>526.blender_r</th>
<th>527.cam4_r</th>
<th>538.imagick_r</th>
<th>544.nab_r</th>
<th>549.fotonik3d_r</th>
<th>554.roms_r</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>128</td>
<td>128</td>
<td>128</td>
<td>128</td>
<td>128</td>
<td>128</td>
<td>128</td>
<td>128</td>
<td>128</td>
<td>128</td>
<td>128</td>
<td>128</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>64</td>
<td>64</td>
<td></td>
<td>64</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>64</td>
<td></td>
<td>64</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>585</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>504</td>
<td></td>
<td>219</td>
<td></td>
</tr>
</tbody>
</table>

### CPU2017 License:
55

### Test Sponsor:
Dell Inc.

### Tested by:
Dell Inc.

### Test Date:
Sep-2021

### Hardware

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon Platinum 8362</td>
</tr>
<tr>
<td>Max MHz</td>
<td>3600</td>
</tr>
<tr>
<td>Nominal</td>
<td>2800</td>
</tr>
<tr>
<td>Enabled</td>
<td>64 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>Orderable</td>
<td>1.2 chips</td>
</tr>
<tr>
<td>Cache L1</td>
<td>32 KB I + 48 KB D on chip per core</td>
</tr>
<tr>
<td>L2:</td>
<td>1.25 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3:</td>
<td>48 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other:</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R)</td>
</tr>
<tr>
<td>Storage</td>
<td>225 GB on tmpfs</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS:</td>
<td>Red Hat Enterprise Linux 8.3 (Ootpa)</td>
</tr>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux;</td>
</tr>
<tr>
<td></td>
<td>Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux;</td>
</tr>
<tr>
<td></td>
<td>C/C++: Version 2021.1 of Intel C/C++ Compiler Classic Build 20201112 for Linux;</td>
</tr>
<tr>
<td>Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>Firmware:</td>
<td>Version 1.3.8 released Aug-2021</td>
</tr>
<tr>
<td>File System:</td>
<td>tmpfs</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 5 (graphical multi-user)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>64-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>64-bit</td>
</tr>
<tr>
<td>Other:</td>
<td>jemalloc memory allocator V5.0.1</td>
</tr>
<tr>
<td>Power Management:</td>
<td>BIOS and OS set to prefer performance at the cost of additional power usage.</td>
</tr>
</tbody>
</table>

### SPECrate®2017_fp_base = 425

### SPECrate®2017_fp_peak = 451
### 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>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>128</td>
<td>1809</td>
<td>710</td>
<td>1807</td>
<td>710</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>128</td>
<td>277</td>
<td>585</td>
<td>277</td>
<td>585</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>508.namd_r</td>
<td>128</td>
<td>318</td>
<td>382</td>
<td>319</td>
<td>381</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>510.parest_r</td>
<td>128</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>511.povray_r</td>
<td>128</td>
<td>532</td>
<td>562</td>
<td>539</td>
<td>555</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>128</td>
<td>508</td>
<td>265</td>
<td>508</td>
<td>265</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>128</td>
<td>858</td>
<td>334</td>
<td>858</td>
<td>334</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>526.blender_r</td>
<td>128</td>
<td>385</td>
<td>507</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>128</td>
<td>465</td>
<td>481</td>
<td>468</td>
<td>478</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>128</td>
<td>245</td>
<td>1300</td>
<td>245</td>
<td>1300</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>544.nab_r</td>
<td>128</td>
<td>248</td>
<td>868</td>
<td>249</td>
<td>864</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>128</td>
<td>2273</td>
<td>219</td>
<td>2276</td>
<td>219</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>554.roms_r</td>
<td>128</td>
<td>1327</td>
<td>153</td>
<td>1329</td>
<td>153</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

### 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:

```bash
LD_LIBRARY_PATH = 
"/mnt/ramdisk/cpu2017-1.1.5-ic2021.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.5-ic2021.1/je5.0.1-64"
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
Dell Inc.
PowerEdge R750 (Intel Xeon Platinum 8362, 2.80 GHz)

SPEC CPU®2017 Floating Point Rate Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

SPECrate®2017_fp_base = 425
SPECrate®2017_fp_peak = 451

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
runcpu command invoked through numacl i.e.:
    numacl --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

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

Platform Notes

BIOS Settings:
    Sub NUMA Cluster : 2-Way Clustering
    Virtualization Technology : Disabled

    System Profile : Custom
    CPU Power Management : Maximum Performance
    C1E : Disabled
    C States : Autonomous
    Memory Patrol Scrub : Disabled
    Energy Efficiency Policy : Performance
    CPU Interconnect Bus Link
    Power Management : Disabled
    PCI ASPM L1 Link
    Power Management : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.5-ic2021.1/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on localhost.localdomain Thu Sep 30 10:12:20 2021

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see
    https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo
    model name : Intel(R) Xeon(R) Platinum 8362 CPU @ 2.80GHz

(Continued on next page)
## Dell Inc.

PowerEdge R750 (Intel Xeon Platinum 8362, 2.80 GHz)

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>Test Sponsor</th>
<th>Tested by</th>
<th>Test Date</th>
<th>Hardware Availability</th>
<th>Software Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>Dell Inc.</td>
<td>Dell Inc.</td>
<td>Sep-2021</td>
<td>Sep-2021</td>
<td>Feb-2021</td>
</tr>
</tbody>
</table>

---

### SPEC CPU®2017 Floating Point Rate Result

**SPECrate®2017_fp_base** = 425  
**SPECrate®2017_fp_peak** = 451

---

### Platform Notes (Continued)

2 "physical id"s (chips)  
128 "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 : 32  
siblings : 64  
physical 0: cores 0 1 2 3 4 5 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31  
physical 1: cores 0 1 2 3 4 5 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

From `lscpu`:

- **Architecture**: x86_64  
- **CPU op-mode(s)**: 32-bit, 64-bit  
- **Byte Order**: Little Endian  
- **CPU(s)**: 128  
- **On-line CPU(s) list**: 0-127  
- **Thread(s) per core**: 2  
- **Core(s) per socket**: 32  
- **Socket(s)**: 2  
- **NUMA node(s)**: 4  
- **Vendor ID**: GenuineIntel  
- **CPU family**: 6  
- **Model**: 106  
- **Model name**: Intel(R) Xeon(R) Platinum 8362 CPU @ 2.80GHz  
- **Stepping**: 6  
- **CPU MHz**: 3052.432  
- **BogoMIPS**: 5600.00  
- **Virtualization**: VT-x  
- **L1d cache**: 48K  
- **L1i cache**: 32K  
- **L2 cache**: 1280K  
- **L3 cache**: 49152K  

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, 112, 116, 120, 124

NUMA node1 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, 114, 118, 122, 126

NUMA node2 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, 113, 117, 121, 125

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)
Dell Inc.
PowerEdge R750 (Intel Xeon Platinum 8362, 2.80 GHz)

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

SPECrate®2017_fp_base = 425
SPECrate®2017_fp_peak = 451

Test Date: Sep-2021
Hardware Availability: Sep-2021
Software Availability: Feb-2021

Platform Notes (Continued)

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

/node distances:
node 0 cpus: 0 1 2 3
0: 10 11 20 20
1: 11 10 20 20
2: 20 20 10 11
3: 20 10 11 10

From /proc/meminfo
MemTotal: 527794120 kB
 HugePages_Total: 0
 Hugepagesize: 2048 kB

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

Dell Inc.
PowerEdge R750 (Intel Xeon Platinum 8362, 2.80 GHz)

SPECrate®2017_fp_base = 425
SPECrate®2017_fp_peak = 451

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

Test Date: Sep-2021
Hardware Availability: Sep-2021
Software Availability: Feb-2021

Platform Notes (Continued)

Current active profile: throughput-performance

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

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

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit): Not affected
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2018-3639 (Speculative Store Bypass): Mitigation: usercopy/swapgs barriers and __user pointer sanitization
CVE-2017-5753 (Spectre variant 1): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
CVE-2017-5715 (Spectre variant 2):
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 5 Sep 30 05:18

SPEC is set to: /mnt/ramdisk/cpu2017-1.1.5-ic2021.1
  Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 225G 6.9G 219G 4% /mnt/ramdisk

From /sys/devices/virtual/dmi/id
  Vendor: Dell Inc.
  Product: PowerEdge R750
  Product Family: PowerEdge

(Continued on next page)
Platform Notes (Continued)

Serial: 1234567

Additional information from dmidecode follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Memory:
- 12x 002C069D002C 18ASF4G72PDZ-3G2E1 32 GB 2 rank 3200
- 4x 00AD063200AD HMAA4GR7AQR8N-XN 32 GB 2 rank 3200
- 16x Not Specified Not Specified

BIOS:
- BIOS Vendor: Dell Inc.
- BIOS Version: 1.3.8
- BIOS Date: 08/31/2021
- BIOS Revision: 1.3

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

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

-----------------------------------------------------------------------------------------------
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
| 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
(Continued on next page)
Dell Inc.  
PowerEdge R750 (Intel Xeon Platinum 8362, 2.80 GHz)  

| SPECrate\textsuperscript{®}2017\_fp\_peak | 451 |
| SPECrate\textsuperscript{®}2017\_fp\_base | 425 |

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

Copyright 2017-2021 Standard Performance Evaluation Corporation  

Compiler Version Notes (Continued)

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

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

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 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

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

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

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

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 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

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

C++, C, Fortran  | 507.cactuBSSN\_r(base, peak)

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.

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

**PowerEdge R750 (Intel Xeon Platinum 8362, 2.80 GHz)**

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

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Test Date:</td>
<td>Sep-2021</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Sep-2021</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Feb-2021</td>
</tr>
</tbody>
</table>

**SPECrate®2017_fp_base = 425**

**SPECrate®2017_fp_peak = 451**

**Compiler Version Notes (Continued)**

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

---

<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>
</table>

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.

---

<table>
<thead>
<tr>
<th>Fortran, C</th>
<th>521.wrf_r(peak)</th>
</tr>
</thead>
</table>

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.

---

<table>
<thead>
<tr>
<th>Fortran, C</th>
<th>521.wrf_r(base) 527.cam4_r(base, peak)</th>
</tr>
</thead>
</table>

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.

---

<table>
<thead>
<tr>
<th>Fortran, C</th>
<th>521.wrf_r(peak)</th>
</tr>
</thead>
</table>

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.

---

<table>
<thead>
<tr>
<th>Fortran, C</th>
<th>521.wrf_r(base) 527.cam4_r(base, peak)</th>
</tr>
</thead>
</table>

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.

---

(Continued on next page)
Dell Inc.
PowerEdge R750 (Intel Xeon Platinum 8362, 2.80 GHz)

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

SPECrater®2017_fp_base = 425
SPECrater®2017_fp_peak = 451

Test Date: Sep-2021
Hardware Availability: Sep-2021
Software Availability: Feb-2021

Compiler Version Notes (Continued)

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

(Continued on next page)
SPEC CPU®2017 Floating Point Rate Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

Dell Inc.  
PowerEdge R750 (Intel Xeon Platinum 8362, 2.80 GHz)  

SPECrate®2017_fp_base = 425  
SPECrate®2017_fp_peak = 451

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

Test Date: Sep-2021  
Hardware Availability: Sep-2021  
Software Availability: Feb-2021

Dell Inc.

Base Portability Flags (Continued)

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

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

(Continued on next page)
Dell Inc.
PowerEdge R750 (Intel Xeon Platinum 8362, 2.80 GHz)

SPECrate®2017_fp_base = 425
SPECrate®2017_fp_peak = 451

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

Test Date: Sep-2021
Hardware Availability: Sep-2021
Software Availability: Feb-2021

Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):
-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

Peak Optimization Flags

C benchmarks:
519.lbm_r: basepeak = yes
Dell Inc.  
PowerEdge R750 (Intel Xeon Platinum 8362, 2.80 GHz)  

SPEC CPU®2017 Floating Point Rate Result

| Test Sponsor: | Dell Inc. | Hardware Availability: | Sep-2021 |
| Test Date:    |          |                           |          |
| Tested by:    | Dell Inc. |                           |          |

SPECrate®2017_fp_base = 425  
SPECrate®2017_fp_peak = 451

Peak Optimization Flags (Continued)

538.imagick_r: basepeak = yes

544.nab_r: -w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -flto
-Ofast -qopt-mem-layout-trans=4
-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:

508.namd_r: basepeak = yes

510.parest_r: -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:

503.bwaves_r: -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

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

(Continued on next page)
Dell Inc.  
PowerEdge R750 (Intel Xeon Platinum 8362, 2.80 GHz)  

SPECrate®2017_fp_base = 425  
SPECrate®2017_fp_peak = 451

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

Test Date: Sep-2021  
Hardware Availability: Sep-2021  
Software Availability: Feb-2021

Peak Optimization Flags (Continued)

511.povray_r (continued):
-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-ic2021-official-linux64_revA.xml
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-ICX-rev1.4.xml

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 v1.1.5 on 2021-09-30 11:12:20-0400.  
Originally published on 2021-10-26.