Dell Inc.

PowerEdge R750 xa (Intel Xeon Platinum 8352S, 2.20 GHz)

**SPEC CPU 2017 Floating Point Rate Result**

**Dell Inc.**

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

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS: Red Hat Enterprise Linux 8.3 (Ootpa)</td>
<td>CPU Name: Intel Xeon Platinum 8352S</td>
</tr>
<tr>
<td>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</td>
<td>Max MHz: 3400</td>
</tr>
<tr>
<td>Parallel: No</td>
<td>Nominal: 2200</td>
</tr>
<tr>
<td>Firmware: Version 1.1.2 released Apr-2021</td>
<td>Enabled: 64 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>File System: tmpfs</td>
<td>Orderable: 1.2 chips</td>
</tr>
<tr>
<td>System State: Run level 5 (graphical multi-user)</td>
<td>Cache L1: 32 KB I + 48 KB D on chip per core</td>
</tr>
<tr>
<td>Base Pointers: 64-bit</td>
<td>L2: 1.25 MB I+D on chip per core</td>
</tr>
<tr>
<td>Peak Pointers: 64-bit</td>
<td>Other: None</td>
</tr>
<tr>
<td>Other: None</td>
<td>Memory: 512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R)</td>
</tr>
<tr>
<td>Software Availability: Feb-2021</td>
<td>Storage: 225 GB on tmpfs</td>
</tr>
<tr>
<td>Hardware Availability: May-2021</td>
<td>Other: None</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Date:** Apr-2021  
**Hardware Availability:** May-2021  
**Software Availability:** Feb-2021

**Test Sponsor:** Dell Inc.

**Hardware**

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS: Red Hat Enterprise Linux 8.3 (Ootpa)</td>
<td>CPU Name: Intel Xeon Platinum 8352S</td>
</tr>
<tr>
<td>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</td>
<td>Max MHz: 3400</td>
</tr>
<tr>
<td>Parallel: No</td>
<td>Nominal: 2200</td>
</tr>
<tr>
<td>Firmware: Version 1.1.2 released Apr-2021</td>
<td>Enabled: 64 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>File System: tmpfs</td>
<td>Orderable: 1.2 chips</td>
</tr>
<tr>
<td>System State: Run level 5 (graphical multi-user)</td>
<td>Cache L1: 32 KB I + 48 KB D on chip per core</td>
</tr>
<tr>
<td>Base Pointers: 64-bit</td>
<td>L2: 1.25 MB I+D on chip per core</td>
</tr>
<tr>
<td>Peak Pointers: 64-bit</td>
<td>Other: None</td>
</tr>
<tr>
<td>Other: None</td>
<td>Memory: 512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R)</td>
</tr>
</tbody>
</table>

**Software**

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS: Red Hat Enterprise Linux 8.3 (Ootpa)</td>
<td>CPU Name: Intel Xeon Platinum 8352S</td>
</tr>
<tr>
<td>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</td>
<td>Max MHz: 3400</td>
</tr>
<tr>
<td>Parallel: No</td>
<td>Nominal: 2200</td>
</tr>
<tr>
<td>Firmware: Version 1.1.2 released Apr-2021</td>
<td>Enabled: 64 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>File System: tmpfs</td>
<td>Orderable: 1.2 chips</td>
</tr>
<tr>
<td>System State: Run level 5 (graphical multi-user)</td>
<td>Cache L1: 32 KB I + 48 KB D on chip per core</td>
</tr>
<tr>
<td>Base Pointers: 64-bit</td>
<td>L2: 1.25 MB I+D on chip per core</td>
</tr>
<tr>
<td>Peak Pointers: 64-bit</td>
<td>Other: None</td>
</tr>
<tr>
<td>Other: None</td>
<td>Memory: 512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R)</td>
</tr>
</tbody>
</table>

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

Dell Inc.

PowerEdge R750 xa (Intel Xeon Platinum 8352S, 2.20 GHz)

**SPECrate®2017_fp_base = 389**

**SPECrate®2017_fp_peak = 408**

**Copies**

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS: Red Hat Enterprise Linux 8.3 (Ootpa)</td>
<td>CPU Name: Intel Xeon Platinum 8352S</td>
</tr>
<tr>
<td>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</td>
<td>Max MHz: 3400</td>
</tr>
<tr>
<td>Parallel: No</td>
<td>Nominal: 2200</td>
</tr>
<tr>
<td>Firmware: Version 1.1.2 released Apr-2021</td>
<td>Enabled: 64 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>File System: tmpfs</td>
<td>Orderable: 1.2 chips</td>
</tr>
<tr>
<td>System State: Run level 5 (graphical multi-user)</td>
<td>Cache L1: 32 KB I + 48 KB D on chip per core</td>
</tr>
<tr>
<td>Base Pointers: 64-bit</td>
<td>L2: 1.25 MB I+D on chip per core</td>
</tr>
<tr>
<td>Peak Pointers: 64-bit</td>
<td>Other: None</td>
</tr>
<tr>
<td>Other: None</td>
<td>Memory: 512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R)</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Date:** Apr-2021  
**Hardware Availability:** May-2021  
**Software Availability:** Feb-2021

**Test Sponsor:** Dell Inc.

**Hardware**

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS: Red Hat Enterprise Linux 8.3 (Ootpa)</td>
<td>CPU Name: Intel Xeon Platinum 8352S</td>
</tr>
<tr>
<td>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</td>
<td>Max MHz: 3400</td>
</tr>
<tr>
<td>Parallel: No</td>
<td>Nominal: 2200</td>
</tr>
<tr>
<td>Firmware: Version 1.1.2 released Apr-2021</td>
<td>Enabled: 64 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>File System: tmpfs</td>
<td>Orderable: 1.2 chips</td>
</tr>
<tr>
<td>System State: Run level 5 (graphical multi-user)</td>
<td>Cache L1: 32 KB I + 48 KB D on chip per core</td>
</tr>
<tr>
<td>Base Pointers: 64-bit</td>
<td>L2: 1.25 MB I+D on chip per core</td>
</tr>
<tr>
<td>Peak Pointers: 64-bit</td>
<td>Other: None</td>
</tr>
<tr>
<td>Other: None</td>
<td>Memory: 512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R)</td>
</tr>
</tbody>
</table>

**Software**

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS: Red Hat Enterprise Linux 8.3 (Ootpa)</td>
<td>CPU Name: Intel Xeon Platinum 8352S</td>
</tr>
<tr>
<td>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</td>
<td>Max MHz: 3400</td>
</tr>
<tr>
<td>Parallel: No</td>
<td>Nominal: 2200</td>
</tr>
<tr>
<td>Firmware: Version 1.1.2 released Apr-2021</td>
<td>Enabled: 64 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>File System: tmpfs</td>
<td>Orderable: 1.2 chips</td>
</tr>
<tr>
<td>System State: Run level 5 (graphical multi-user)</td>
<td>Cache L1: 32 KB I + 48 KB D on chip per core</td>
</tr>
<tr>
<td>Base Pointers: 64-bit</td>
<td>L2: 1.25 MB I+D on chip per core</td>
</tr>
<tr>
<td>Peak Pointers: 64-bit</td>
<td>Other: None</td>
</tr>
<tr>
<td>Other: None</td>
<td>Memory: 512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R)</td>
</tr>
</tbody>
</table>

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

Dell Inc.

PowerEdge R750 xa (Intel Xeon Platinum 8352S, 2.20 GHz)

**SPECrate®2017_fp_base = 389**

**SPECrate®2017_fp_peak = 408**

**Copies**

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS: Red Hat Enterprise Linux 8.3 (Ootpa)</td>
<td>CPU Name: Intel Xeon Platinum 8352S</td>
</tr>
<tr>
<td>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</td>
<td>Max MHz: 3400</td>
</tr>
<tr>
<td>Parallel: No</td>
<td>Nominal: 2200</td>
</tr>
<tr>
<td>Firmware: Version 1.1.2 released Apr-2021</td>
<td>Enabled: 64 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>File System: tmpfs</td>
<td>Orderable: 1.2 chips</td>
</tr>
<tr>
<td>System State: Run level 5 (graphical multi-user)</td>
<td>Cache L1: 32 KB I + 48 KB D on chip per core</td>
</tr>
<tr>
<td>Base Pointers: 64-bit</td>
<td>L2: 1.25 MB I+D on chip per core</td>
</tr>
<tr>
<td>Peak Pointers: 64-bit</td>
<td>Other: None</td>
</tr>
<tr>
<td>Other: None</td>
<td>Memory: 512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R)</td>
</tr>
</tbody>
</table>
Dell Inc.
PowerEdge R750 xa (Intel Xeon Platinum 8352S, 2.20 GHz)

SPECrate®2017_fp_base = 389
SPECrate®2017_fp_peak = 408

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

Test Date: Apr-2021
Hardware Availability: May-2021
Software Availability: Feb-2021

Software (Continued)
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Base</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>1801</td>
<td>713</td>
<td>1801</td>
<td>713</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>128</td>
<td>297</td>
<td>545</td>
<td>297</td>
<td>545</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>508.namd_r</td>
<td>128</td>
<td>379</td>
<td>321</td>
<td>380</td>
<td>320</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>510.parest_r</td>
<td>128</td>
<td>1673</td>
<td>200</td>
<td>1670</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>511.povray_r</td>
<td>128</td>
<td>637</td>
<td>469</td>
<td>639</td>
<td>467</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>128</td>
<td>516</td>
<td>261</td>
<td>517</td>
<td>261</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>128</td>
<td>861</td>
<td>333</td>
<td>860</td>
<td>333</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>526.blender_r</td>
<td>128</td>
<td>454</td>
<td>429</td>
<td>455</td>
<td>429</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>128</td>
<td>543</td>
<td>413</td>
<td>544</td>
<td>411</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>128</td>
<td>293</td>
<td>1090</td>
<td>292</td>
<td>1090</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>544.nab_r</td>
<td>128</td>
<td>301</td>
<td>716</td>
<td>299</td>
<td>720</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>128</td>
<td>2275</td>
<td>219</td>
<td>2274</td>
<td>219</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>554.roms_r</td>
<td>128</td>
<td>1345</td>
<td>151</td>
<td>1338</td>
<td>152</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPECrate®2017_fp_base = 389
SPECrate®2017_fp_peak = 408

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:
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"
MALLOCC_CONF = "retain:true"
Dell Inc.
PowerEdge R750 xa (Intel Xeon Platinum 8352S, 2.20 GHz)  

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

| SPECrate®2017_fp_base = 389 |
| SPECrate®2017_fp_peak = 408 |

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

---

### 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  
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  

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

Sysinfo program /mnt/ramdisk/cpu2017-1.1.5-ic2021.1/bin/sysinfo  
Rev: r6538 of 2020-09-24 e8664e6d2d7080afeaa89d4b38e2f1c  
running on localhost.localdomain Tue Apr 27 19:55:56 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

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

**PowerEdge R750 xa (Intel Xeon Platinum 8352S, 2.20 GHz)**

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base</th>
<th>389</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_fp_peak</td>
<td>408</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test Date:** Apr-2021  
**Hardware Availability:** May-2021  
**Software Availability:** Feb-2021

**Platform Notes (Continued)**

```
model name : Intel(R) Xeon(R) Platinum 8352S CPU @ 2.20GHz  
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 8352S CPU @ 2.20GHz  
Stepping: 6  
CPU MHz: 1673.481  
BogoMIPS: 4400.00  
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  
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov  
```

(Continued on next page)
Dell Inc.

PowerEdge R750 xa (Intel Xeon Platinum 8352S, 2.20 GHz)

SPEC CPU®2017 Floating Point Rate Result

SPECrater®2017_fp_base = 389
SPECrater®2017_fp_peak = 408

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

Platform Notes (Continued)

cache size : 49152 KB

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

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
100 104 108 112 116 120 124
node 0 size: 124919 MB
node 0 free: 112690 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
101 105 109 113 117 121 125
node 1 size: 126424 MB
node 1 free: 128186 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
102 106 110 114 118 122 126
node 2 size: 128057 MB
node 2 free: 128078 MB
node 3 cpus: 0 1 2 3
0: 10 11 20 20
1: 11 10 20 20
2: 20 20 10 11
3: 20 20 11 10
node distances:

From /proc/meminfo

MemTotal: 527793972 KB
HugePages_Total: 0
Hugepagesize: 2048 KB

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

**Dell Inc.**  
**PowerEdge R750 xa (Intel Xeon Platinum 8352S, 2.20 GHz)**  

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

### SPECrate®2017_fp_base = 389  
### SPECrate®2017_fp_peak = 408

---

## Platform Notes (Continued)

/sbin/tuned-adm active  
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:

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

run-level 5 Apr 27 14:19

```
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.5-ic2021.1
```

From /sys/devices/virtual/dmi/id

```
Vendor: Dell Inc.
Product: PowerEdge R750 xa
```

---

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

## Dell Inc.

PowerEdge R750 xa (Intel Xeon Platinum 8352S, 2.20 GHz)

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base = 389</th>
<th>SPECrate®2017_fp_peak = 408</th>
</tr>
</thead>
</table>

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

<table>
<thead>
<tr>
<th>Test Date:</th>
<th>Apr-2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability:</td>
<td>May-2021</td>
</tr>
</tbody>
</table>

### Platform Notes (Continued)

- **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.

- **Memory:**  
  - 16x 002C069D002C 18ASF4G72PDZ-3G2E1 32 GB 2 rank 3200  
  - 16x Not Specified Not Specified

- **BIOS:**  
  - BIOS Vendor: Dell Inc.  
  - BIOS Version: 1.1.2  
  - BIOS Date: 04/09/2021  
  - BIOS Revision: 1.1

(End of data from `sysinfo` program)

### Compiler Version Notes

<table>
<thead>
<tr>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>519.libm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(base, peak)</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>C++</th>
</tr>
</thead>
<tbody>
<tr>
<td>508.namd_r(base, peak) 510.parent_r(base, peak)</td>
</tr>
</tbody>
</table>

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.

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

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.

(Continued on next page)
**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.
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
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.
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.
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)
### 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>
<tbody>
<tr>
<td>Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000</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, C</th>
<th>521.wrf_r(peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000</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, C</th>
<th>521.wrf_r(base) 527.cam4_r(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000</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, C</th>
<th>521.wrf_r(peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000</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)
Dell Inc.
PowerEdge R750 xa (Intel Xeon Platinum 8352S, 2.20 GHz)

SPECrate®2017_fp_base = 389
SPECrate®2017_fp_peak = 408

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

Test Date: Apr-2021
Hardware Availability: May-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.ibm_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)
Dell Inc.
PowerEdge R750 xa (Intel Xeon Platinum 8352S, 2.20 GHz)

SPECrate®2017_fp_base = 389
SPECrate®2017_fp_peak = 408

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

Test Date: Apr-2021
Hardware Availability: May-2021
Software Availability: Feb-2021

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 xa (Intel Xeon Platinum 8352S, 2.20 GHz)

SPECrate®2017_fp_base = 389
SPECrate®2017_fp_peak = 408

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

Test Date: Apr-2021
Hardware Availability: May-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

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

Dell Inc.
PowerEdge R750 xa (Intel Xeon Platinum 8352S, 2.20 GHz)  

SPECrater®2017_fp_base = 389
SPECrater®2017_fp_peak = 408

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

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

SPEC CPU and SPECrater 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 2021-04-27 07:55:55-0400.
Originally published on 2021-05-25.