## SPEC CPU®2017 Floating Point Rate Result

### Dell Inc.

PowerEdge MX750c (Intel Xeon Gold 6312U, 2.40 GHz)

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

### SPECrate®2017 fp_base = 174

### SPECrate®2017 fp_peak = 182

<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>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate®2017_fp_peak (182)</th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>236</td>
</tr>
<tr>
<td>507.caactuBSSN_r</td>
<td>355</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>130</td>
</tr>
<tr>
<td>510.parest_r</td>
<td>95.2</td>
</tr>
<tr>
<td>511.povray_r</td>
<td>116</td>
</tr>
<tr>
<td>519.blm_r</td>
<td>135</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>155</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>176</td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>175</td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>130</td>
</tr>
<tr>
<td>544.nab_r</td>
<td>295</td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>106</td>
</tr>
<tr>
<td>554.roms_r</td>
<td>73.4</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base (174)</th>
<th>SPECrate®2017_fp_peak (182)</th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>236</td>
</tr>
<tr>
<td>507.caactuBSSN_r</td>
<td>355</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>130</td>
</tr>
<tr>
<td>510.parest_r</td>
<td>95.2</td>
</tr>
<tr>
<td>511.povray_r</td>
<td>116</td>
</tr>
<tr>
<td>519.blm_r</td>
<td>135</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>155</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>176</td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>175</td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>130</td>
</tr>
<tr>
<td>544.nab_r</td>
<td>295</td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>106</td>
</tr>
<tr>
<td>554.roms_r</td>
<td>73.4</td>
</tr>
</tbody>
</table>

### CPU Name: Intel Xeon Gold 6312U
- Max MHz: 3600
- Nominal: 2400
- Enabled: 24 cores, 1 chip, 2 threads/core
- Orderable: 1 chip
- Cache L1: 32 KB I + 48 KB D on chip per core
- Cache L2: 1.25 MB I+D on chip per core
- Cache L3: 36 MB I+D on chip per chip
- Other: None
- Memory: 256 GB (8 x 32 GB 2Rx8 PC4-3200AA-R)
- Storage: 125 GB on tmpfs
- Other: None

### OS: Red Hat Enterprise Linux 8.3 (Ootpa)
- 4.18.0-240.el8.x86_64

### 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 1.1.3 released Apr-2021
- tmpfs

### System State:
- Run level 3 (multi-user)

### Power Management:
- BIOS and OS set to prefer performance at the cost of additional power usage.
Dell Inc.  

PowerEdge MX750c (Intel Xeon Gold 6312U, 2.40 GHz)  

SPECrate®2017_fp_base = 174  
SPECrate®2017_fp_peak = 182

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>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>48</td>
<td>1355</td>
<td>355</td>
<td>1356</td>
<td>355</td>
<td>24</td>
<td>677</td>
<td>355</td>
<td>676</td>
<td>356</td>
<td></td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>48</td>
<td>257</td>
<td>236</td>
<td>254</td>
<td>239</td>
<td>48</td>
<td>257</td>
<td>236</td>
<td>254</td>
<td>239</td>
<td></td>
</tr>
<tr>
<td>508.namd_r</td>
<td>48</td>
<td>349</td>
<td>131</td>
<td>350</td>
<td>130</td>
<td>48</td>
<td>349</td>
<td>131</td>
<td>350</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>510.parest_r</td>
<td>48</td>
<td>1319</td>
<td>95.2</td>
<td>1314</td>
<td>95.6</td>
<td>24</td>
<td>539</td>
<td>117</td>
<td>541</td>
<td>116</td>
<td></td>
</tr>
<tr>
<td>511.povray_r</td>
<td>48</td>
<td>584</td>
<td>192</td>
<td>585</td>
<td>192</td>
<td>48</td>
<td>509</td>
<td>220</td>
<td>509</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>48</td>
<td>376</td>
<td>135</td>
<td>376</td>
<td>135</td>
<td>48</td>
<td>376</td>
<td>135</td>
<td>376</td>
<td>135</td>
<td></td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>48</td>
<td>695</td>
<td>155</td>
<td>693</td>
<td>155</td>
<td>48</td>
<td>695</td>
<td>155</td>
<td>693</td>
<td>155</td>
<td></td>
</tr>
<tr>
<td>526.blender_r</td>
<td>48</td>
<td>415</td>
<td>176</td>
<td>415</td>
<td>176</td>
<td>48</td>
<td>415</td>
<td>176</td>
<td>415</td>
<td>176</td>
<td></td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>48</td>
<td>478</td>
<td>176</td>
<td>479</td>
<td>175</td>
<td>48</td>
<td>478</td>
<td>176</td>
<td>479</td>
<td>175</td>
<td></td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>48</td>
<td>255</td>
<td>469</td>
<td>254</td>
<td>470</td>
<td>48</td>
<td>255</td>
<td>469</td>
<td>254</td>
<td>470</td>
<td></td>
</tr>
<tr>
<td>544.nab_r</td>
<td>48</td>
<td>274</td>
<td>295</td>
<td>273</td>
<td>296</td>
<td>48</td>
<td>271</td>
<td>298</td>
<td>269</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>48</td>
<td>1756</td>
<td>107</td>
<td>1762</td>
<td>106</td>
<td>48</td>
<td>1756</td>
<td>107</td>
<td>1762</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>554.roms_r</td>
<td>48</td>
<td>1039</td>
<td>73.4</td>
<td>1036</td>
<td>73.6</td>
<td>24</td>
<td>418</td>
<td>91.3</td>
<td>420</td>
<td>90.8</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:
LD_LIBRARY_PATH = 
"/mnt/ramdisk/cpu2017-1.1.7-ic2021.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.7-ic2021.1/je5.0.1-64"

MALLOCS_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

(Continued on next page)
**General Notes (Continued)**

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

Benchmark run from a 125 GB ramdisk created with the cmd: "mount -t tmpfs -o size=125G 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/cpu2017-1.1.7-ic2021.1/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080a8ee098d4b38e2f1c
running on localhost.localdomain Sat May 22 07:30:24 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) Gold 6312U CPU @ 2.40GHz
- 1 "physical id"s (chips)
## Platform Notes (Continued)

48 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores : 24
siblings : 48

physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

From lscpu:

- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- CPU(s): 48
- On-line CPU(s) list: 0-47
- Thread(s) per core: 2
- Core(s) per socket: 24
- Socket(s): 1
- NUMA node(s): 2

- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 106
- Model name: Intel(R) Xeon(R) Gold 6312U CPU @ 2.40GHz
- Stepping: 6
- CPU MHz: 3118.678
- BogoMIPS: 4800.00
- Virtualization: VT-x
- L1d cache: 48K
- L1i cache: 32K
- L2 cache: 1280K
- L3 cache: 36864K
- NUMA node0 CPU(s): 0-11,24-35
- NUMA node1 CPU(s): 12-23,36-47

- Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtrunc pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abrmdisv ms abandon vfpprecfetch cpuid_fault epb cat_l3 invpcid_single intel_pcin ssbd mba ibrs ibpb stibp ibrs_enhanced fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid cmq rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512v1 xsaveopt xsavefcvs xetbvb1 xsaves cmq_llc cmq_occum_llc cmq_mmb_total cmq_mmb_local split_lock_detect wbinvd dtherm ida arat pln pts avx512vmbmi umip pku ospke avx512_vmbmi2 gfn1 vaes vpc1mulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid md_clear pconfig flush_l1d arch_capabilities

/proc/cpuinfo cache data
- cache size : 36864 KB

(Continued on next page)
Dell Inc.  
PowerEdge MX750c (Intel Xeon Gold 6312U, 2.40 GHz)  

SPEC CPU®2017 Floating Point Rate Result  

<table>
<thead>
<tr>
<th>Spec License</th>
<th>Test Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>May-2021</td>
</tr>
<tr>
<td>Dell Inc.</td>
<td></td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Date:** May-2021  
**Test Sponsor:** Dell Inc.  
**Hardware Availability:** Apr-2021  
**Tested by:** Dell Inc.  
**Software Availability:** Dec-2020  

**SPECrate®2017_fp_base = 174**  
**SPECrate®2017_fp_peak = 182**

---

**Platform Notes (Continued)**

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

available: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 24 25 26 27 28 29 30 31 32 33 34 35
node 0 size: 124078 MB
node 0 free: 114155 MB
node 1 cpus: 12 13 14 15 16 17 18 19 20 21 22 23 36 37 38 39 40 41 42 43 44 45 46 47
node 1 size: 125133 MB
node 1 free: 109915 MB
node distances:
node 0:  10  11
node 1:  11  10

From `/proc/meminfo`

MemTotal: 263569812 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/sbin/tuned-adm active
Current active profile: throughput-performance

From `/etc/*release*/`  
**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.el8.x86_64 #1 SMP Wed Sep 23 05:13:10 EDT 2020
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

(Continued on next page)
Dell Inc.  
PowerEdge MX750c (Intel Xeon Gold 6312U, 2.40 GHz)  

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base = 174</th>
<th>SPECrate®2017_fp_peak = 182</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell Inc.</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>CPU2017 License: 55</td>
<td>Test Date: May-2021</td>
</tr>
<tr>
<td>Test Sponsor: Dell Inc.</td>
<td>Hardware Availability: Apr-2021</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Dec-2020</td>
</tr>
</tbody>
</table>

### Platform Notes (Continued)

- **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

**run-level 3 May 22 02:16**

**SPEC is set to:** /mnt/ramdisk/cpu2017-1.1.7-ic2021.1

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>tmpfs</td>
<td>tmpfs</td>
<td>125G</td>
<td>27G</td>
<td>99G</td>
<td>22%</td>
<td>/mnt/ramdisk</td>
</tr>
</tbody>
</table>

From /sys/devices/virtual/dmi/id

<table>
<thead>
<tr>
<th>Vendor:</th>
<th>Dell Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product:</td>
<td>PowerEdge MX750c</td>
</tr>
<tr>
<td>Product Family:</td>
<td>PowerEdge</td>
</tr>
<tr>
<td>Serial:</td>
<td>1234567</td>
</tr>
</tbody>
</table>

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:**
- 8x 002C0632002C 18ASF4G72PDZ-3G2E1 32 GB 2 rank 3200
- 24x Not Specified Not Specified

**BIOS:**
- BIOS Vendor: Dell Inc.
- BIOS Version: 1.1.3
- BIOS Date: 04/27/2021
- BIOS Revision: 1.1

(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,
### Dell Inc. PowerEdge MX750c (Intel Xeon Gold 6312U, 2.40 GHz)

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base = 174</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_fp_peak = 182</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test Date:** May-2021  
**Hardware Availability:** Apr-2021  
**Software Availability:** Dec-2020

---

### Compiler Version Notes (Continued)

Version 2021.1 Build 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

<table>
<thead>
<tr>
<th>C++</th>
<th>508.namd_r(base, peak) 510.parest_r(base, peak)</th>
</tr>
</thead>
</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>
<th>511.povray_r(peak)</th>
</tr>
</thead>
</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.

<table>
<thead>
<tr>
<th>C++, C</th>
<th>511.povray_r(base) 526.blender_r(base, peak)</th>
</tr>
</thead>
</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>
<th>511.povray_r(peak)</th>
</tr>
</thead>
</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.

<table>
<thead>
<tr>
<th>C++, C</th>
<th>511.povray_r(base) 526.blender_r(base, peak)</th>
</tr>
</thead>
</table>

(Continued on next page)
Dell Inc.  

PowerEdge MX750c (Intel Xeon Gold 6312U, 2.40 GHz)  

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base</th>
<th>=</th>
<th>174</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_fp_peak</td>
<td>=</td>
<td>182</td>
</tr>
</tbody>
</table>

CPU2017 License: 55  
Test Sponsor: Dell Inc.  
Test Date: May-2021  
Hardware Availability: Apr-2021  
Tested by: Dell Inc.  
Software Availability: Dec-2020

---

Compiler Version Notes (Continued)

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.

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.

---

Fortran  
503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_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.

---

Fortran, C  
521.wrf_r(base, peak) 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.
SPEC CPU®2017 Floating Point Rate Result

Dell Inc.
PowerEdge MX750c (Intel Xeon Gold 6312U, 2.40 GHz)

SPECrate®2017_fp_base = 174
SPECrate®2017_fp_peak = 182

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

Test Date: May-2021
Hardware Availability: Apr-2021
Software Availability: Dec-2020

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
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

(Continued on next page)
Dell Inc.
PowerEdge MX750c (Intel Xeon Gold 6312U, 2.40 GHz)

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

SPECrate®2017_fp_base = 174
SPECrate®2017_fp_peak = 182

CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: May-2021
Tested by: Dell Inc.
Hardware Availability: Apr-2021
Software Availability: Dec-2020

Base Optimization Flags (Continued)

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
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Peak Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

(Continued on next page)
Benchmarks using both Fortran and C:
fort 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
538.imagick_r: basepeak = yes
544.nab_r: -w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -flto
-Ofast -qopt-mem-layout-trans=4
-fimf-accuracy-bits=14:sqrt
-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

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

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: basepeak = yes
- 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  
  -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  
Dell Inc.  
PowerEdge MX750c (Intel Xeon Gold 6312U, 2.40 GHz)  

| SPECrate®2017_fp_base = 174 |
| SPECrate®2017_fp_peak = 182 |

CPU2017 License: 55  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.  
Test Date: May-2021  
Hardware Availability: Apr-2021  
Software Availability: Dec-2020

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 v1.1.7 on 2021-05-22 07:30:23-0400.  
Originally published on 2021-07-06.