# SPEC CPU®2017 Integer Speed Result

## Dell Inc.

**PowerEdge R750 xa (Intel Xeon Gold 6338N, 2.20 GHz)**

### SPECspeed®2017_int_base = 11.9

### SPECspeed®2017_int_peak = 12.2

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OS:</strong> Red Hat Enterprise Linux 8.3 (Ootpa)</td>
<td><strong>CPU Name:</strong> Intel Xeon Gold 6338N</td>
</tr>
<tr>
<td><strong>Compiler:</strong> C/C++: Version 2021.1 of Intel oneAPI DPC++/C++</td>
<td><strong>Max MHz:</strong> 3500</td>
</tr>
<tr>
<td><strong>Fortran:</strong> Version 2021.1 of Intel Fortran Compiler</td>
<td><strong>Nominal:</strong> 2200</td>
</tr>
<tr>
<td><strong>C/C++:</strong> Version 2021.1 of Intel C/C++ Compiler Classic Build 20201112 for Linux;</td>
<td><strong>Enabled:</strong> 64 cores, 2 chips</td>
</tr>
<tr>
<td><strong>Parallel:</strong> Yes</td>
<td><strong>Orderable:</strong> 1.2 chips</td>
</tr>
<tr>
<td><strong>Firmware:</strong> Version 1.1.2 released Apr-2021</td>
<td><strong>Cache L1:</strong> 32 KB I + 48 KB D on chip per core</td>
</tr>
<tr>
<td><strong>File System:</strong> xfs</td>
<td><strong>L2:</strong> 1.25 MB I+D on chip per core</td>
</tr>
<tr>
<td><strong>System State:</strong> Run level 5 (graphical multi-user)</td>
<td><strong>L3:</strong> 48 MB I+D on chip per chip</td>
</tr>
<tr>
<td><strong>Base Pointers:</strong> 64-bit</td>
<td><strong>Other:</strong> None</td>
</tr>
<tr>
<td><strong>Peak Pointers:</strong> 64-bit</td>
<td><strong>Memory:</strong> 512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R, running at 2666)</td>
</tr>
<tr>
<td><strong>Other:</strong> None</td>
<td><strong>Storage:</strong> 1 x 480 GB M.2 SATA SSD</td>
</tr>
<tr>
<td><strong>jemalloc memory allocator V5.0.1</strong></td>
<td><strong>Other:</strong> None</td>
</tr>
<tr>
<td><strong>Power Management:</strong> BIOS and OS set to prefer performance at the cost of additional power usage.</td>
<td></td>
</tr>
</tbody>
</table>

**Test Sponsor:** Dell Inc.

**Test Date:** Apr-2021

**Hardware Availability:** May-2021

**Tested by:** Dell Inc.

**Software Availability:** Feb-2021

---

### Performance Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench_s</td>
<td>64</td>
<td>12.2</td>
</tr>
<tr>
<td>gcc_s</td>
<td>64</td>
<td>11.9</td>
</tr>
<tr>
<td>mcf_s</td>
<td>64</td>
<td>11.9</td>
</tr>
<tr>
<td>omnetpp_s</td>
<td>64</td>
<td>11.9</td>
</tr>
<tr>
<td>xalancbmk_s</td>
<td>64</td>
<td>13.6</td>
</tr>
<tr>
<td>x264_s</td>
<td>64</td>
<td>17.1</td>
</tr>
<tr>
<td>deepsjeng_s</td>
<td>64</td>
<td>17.1</td>
</tr>
<tr>
<td>leela_s</td>
<td>64</td>
<td>19.4</td>
</tr>
<tr>
<td>exchange2_s</td>
<td>64</td>
<td>23.9</td>
</tr>
<tr>
<td>xz_s</td>
<td>64</td>
<td>23.9</td>
</tr>
</tbody>
</table>

**Threads:**

- **Threads:**
  - perlbench_s: 64
  - gcc_s: 64
  - mcf_s: 64
  - omnetpp_s: 64
  - xalancbmk_s: 64
  - x264_s: 64
  - deepsjeng_s: 64
  - leela_s: 64
  - exchange2_s: 64
  - xz_s: 64

---

**CPU2017 License:** 55

**Test Sponsor:** Dell Inc.

**Test Date:** Apr-2021

**Hardware Availability:** May-2021

**Tested by:** Dell Inc.

**Software Availability:** Feb-2021

---

**CPU Name:** Intel Xeon Gold 6338N

**Max MHz:** 3500

**Nominal:** 2200

**Enabled:** 64 cores, 2 chips

**Orderable:** 1.2 chips

**Cache L1:** 32 KB I + 48 KB D on chip per core

**L2:** 1.25 MB I+D on chip per core

**L3:** 48 MB I+D on chip per chip

**Other:** None

**Memory:** 512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R, running at 2666)

**Storage:** 1 x 480 GB M.2 SATA SSD

**Other:** None
SPEC CPU®2017 Integer Speed Result

Dell Inc.
PowerEdge R750 xa (Intel Xeon Gold 6338N, 2.20 GHz)

Copyright 2017-2021 Standard Performance Evaluation Corporation

SPECspeed®2017_int_base = 11.9
SPECspeed®2017_int_peak = 12.2

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>64</td>
<td>247</td>
<td>7.20</td>
<td>247</td>
<td>7.20</td>
<td>245</td>
<td>7.23</td>
<td>64</td>
<td>214</td>
<td>8.30</td>
<td>214</td>
<td>8.28</td>
<td>215</td>
<td>8.26</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>64</td>
<td>365</td>
<td>10.9</td>
<td>365</td>
<td>10.9</td>
<td>366</td>
<td>10.9</td>
<td>64</td>
<td>352</td>
<td>11.3</td>
<td>353</td>
<td>11.3</td>
<td>352</td>
<td>11.3</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>64</td>
<td>236</td>
<td>20.0</td>
<td>237</td>
<td>19.9</td>
<td>237</td>
<td>19.9</td>
<td>64</td>
<td>236</td>
<td>20.0</td>
<td>237</td>
<td>19.9</td>
<td>237</td>
<td>19.9</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>64</td>
<td>138</td>
<td>11.8</td>
<td>133</td>
<td>12.3</td>
<td>138</td>
<td>11.9</td>
<td>64</td>
<td>138</td>
<td>11.8</td>
<td>133</td>
<td>12.3</td>
<td>138</td>
<td>11.9</td>
</tr>
<tr>
<td>623.xalancmk_s</td>
<td>64</td>
<td>105</td>
<td>13.5</td>
<td>104</td>
<td>13.6</td>
<td>104</td>
<td>13.6</td>
<td>64</td>
<td>105</td>
<td>13.5</td>
<td>104</td>
<td>13.6</td>
<td>104</td>
<td>13.6</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>64</td>
<td>103</td>
<td>17.1</td>
<td>103</td>
<td>17.1</td>
<td>103</td>
<td>17.2</td>
<td>64</td>
<td>98.5</td>
<td>17.9</td>
<td>98.5</td>
<td>17.9</td>
<td>98.5</td>
<td>17.9</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>64</td>
<td>243</td>
<td>5.90</td>
<td>242</td>
<td>5.92</td>
<td>242</td>
<td>5.92</td>
<td>64</td>
<td>243</td>
<td>5.90</td>
<td>242</td>
<td>5.92</td>
<td>242</td>
<td>5.92</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>64</td>
<td>352</td>
<td>4.85</td>
<td>352</td>
<td>4.85</td>
<td>353</td>
<td>4.83</td>
<td>64</td>
<td>352</td>
<td>4.85</td>
<td>352</td>
<td>4.85</td>
<td>353</td>
<td>4.83</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>64</td>
<td>152</td>
<td>19.3</td>
<td>152</td>
<td>19.4</td>
<td>152</td>
<td>19.4</td>
<td>64</td>
<td>152</td>
<td>19.3</td>
<td>152</td>
<td>19.4</td>
<td>152</td>
<td>19.4</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>64</td>
<td>258</td>
<td>23.9</td>
<td>258</td>
<td>23.9</td>
<td>258</td>
<td>23.9</td>
<td>64</td>
<td>258</td>
<td>23.9</td>
<td>258</td>
<td>23.9</td>
<td>258</td>
<td>23.9</td>
</tr>
</tbody>
</table>

SPECspeed®2017_int_base = 11.9
SPECspeed®2017_int_peak = 12.2

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

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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2017-1.1.5-ic2021.1/lib/intel64:/home/cpu2017-1.1.5-ic2021.1/j
e5.0.1-64"
MALLOCONF = "retain:true"
OMP_STACKSIZE = "192M"

General Notes
Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM
memory using Redhat Enterprise Linux 8.0
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesyste 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.

(Continued on next page)
Dell Inc.
PowerEdge R750 xa (Intel Xeon Gold 6338N, 2.20 GHz)

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

SPECspeed®2017_int_base = 11.9
SPECspeed®2017_int_peak = 12.2

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

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

General Notes (Continued)

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.

Platform Notes

BIOS Settings:
Logical Processor : Disabled
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 /home/cpu2017-1.1.5-ic2021.1/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on localhost.localdomain Thu Apr 22 10:01:50 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 6338N CPU @ 2.20GHz
  2 "physical id"s (chips)
  64 "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 : 32
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

(Continued on next page)
SPEC CPU®2017 Integer Speed Result

Dell Inc.
PowerEdge R750 xa (Intel Xeon Gold 6338N, 2.20 GHz)

SPECspeed®2017_int_base = 11.9
SPECspeed®2017_int_peak = 12.2

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)

Byte Order: Little Endian
CPU(s): 64
On-line CPU(s) list: 0-63
Thread(s) per core: 1
Core(s) per socket: 32
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Gold 6338N CPU @ 2.20GHz
Stepping: 6
CPU MHz: 2092.665
BogoMIPS: 4400.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 49152K
NUMA node0 CPU(s):
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,
60,62
NUMA node1 CPU(s):
1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57,59,
61,63
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 rdtsscp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid
aperfmpref pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xtr pdc pcid dca sse4_1 sse4_2 x2apic movbe popcnt ptsc_deadline_timer aes xsave
avx f16c rdrand lahf_lm abm 3nowprefetch cpuid_fault epb cat_l3 invpcid_single
intel_pinn ssbd mba ibrs ibpb stibp ibrs_enhanced fsdb grows tsc_adjust bmi1 hle avx2
smep bmi2 8rms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma
cflushtopt clwb intel_pt avx512cd sha ni avx512bw avx512vl xsaveopt xsaves xgetbv1
xsaves cqm_llc cqm_occup_llc cqm_mbb_total cqm_mbb_local split_lock detect wboinvd
dtether ida arat pln pts avx512vmbi umpk pku ospke avx512_vmbmi2 gfn i vaes vpcmulqdq
avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid md_clear pconfig flush_l1d
arch_capabilities

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 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
52 54 56 58 60 62

(Continued on next page)
SPEC CPU®2017 Integer Speed Result

Dell Inc.
PowerEdge R750 xa (Intel Xeon Gold 6338N, 2.20 GHz)

SPECspeed®2017_int_base = 11.9
SPECspeed®2017_int_peak = 12.2

Platform Notes (Continued)

node 0 size: 245587 MB
node 0 free: 255513 MB
node 1 cpus: 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63
node 1 size: 246498 MB
node 1 free: 256830 MB
node distances:
node 0 1
0: 10 20
1: 20 10

From /proc/meminfo
MemTotal: 527808492 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

From /etc/*release* /etc/*version*
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): Not affected
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2017-5753 (Spectre variant 1): Mitigation: usercopy/swapgs

(Continued on next page)
# SPEC CPU®2017 Integer Speed Result

## Dell Inc.
PowerEdge R750 xa (Intel Xeon Gold 6338N, 2.20 GHz)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>11.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>12.2</td>
</tr>
</tbody>
</table>

### Platform Notes (Continued)

**CVE-2017-5715 (Spectre variant 2):**
- Sanitization: __user pointer
- 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 5 Apr 22 10:00**

**SPEC is set to: /home/cpu2017-1.1.5-ic2021.1**

**Filesystem**
- **Type**: xfs
- **Size**: 168G
- **Used**: 8.3G
- **Avail**: 160G
- **Use%**: 5%
- **Mounted on**: /home

**From /sys/devices/virtual/dmi/id**
- **Vendor**: Dell Inc.
- **Product**: PowerEdge R750 xa
- **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, configured at 2666
- 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

==============================================================================
| C  | 600.perlbench_s(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.
==============================================================================

(Continued on next page)
Compiler Version Notes (Continued)

C

<table>
<thead>
<tr>
<th>600.perlbench_s(base) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak) 657.xz_s(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113</td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
</tr>
</tbody>
</table>

C

<table>
<thead>
<tr>
<th>600.perlbench_s(peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000</td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
</tr>
</tbody>
</table>

C

<table>
<thead>
<tr>
<th>600.perlbench_s(base) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak) 657.xz_s(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113</td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
</tr>
</tbody>
</table>

C++

<table>
<thead>
<tr>
<th>620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113</td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
</tr>
</tbody>
</table>

Fortran

<table>
<thead>
<tr>
<th>648.exchange2_s(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>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
</tr>
</tbody>
</table>

Base Compiler Invocation

C benchmarks:

- icx

(Continued on next page)
# SPEC CPU®2017 Integer Speed Result

**Dell Inc.**  
PowerEdge R750 xa (Intel Xeon Gold 6338N, 2.20 GHz)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.9</td>
<td>12.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>Test Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>Apr-2021</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Sponsor</th>
<th>Hardware Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell Inc.</td>
<td>May-2021</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tested by</th>
<th>Software Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell Inc.</td>
<td>Feb-2021</td>
</tr>
</tbody>
</table>

## Base Compiler Invocation (Continued)

**C++ benchmarks:**  
icpx

**Fortran benchmarks:**  
ifort

## Base Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench_s</td>
<td>-DSPEC_LP64 -DSPEC_LINUX_X64</td>
</tr>
<tr>
<td>gcc_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>mcf_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>omnetpp_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>xalancbmk_s</td>
<td>-DSPEC_LP64 -DSPEC_LINUX</td>
</tr>
<tr>
<td>x264_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>deepsjeng_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>leela_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>exchange2_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>xz_s</td>
<td>-DSPEC_LP64</td>
</tr>
</tbody>
</table>

## Base Optimization Flags

**C benchmarks:**  

**C++ benchmarks:**  

**Fortran benchmarks:**  
-m64 -xCORE-AVX512 -O3 -ipo -no-prec-div -qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte -auto -mbranches-within-32B-boundaries
Dell Inc.
PowerEdge R750 xa (Intel Xeon Gold 6338N, 2.20 GHz)

SPECspeed®2017_int_base = 11.9
SPECspeed®2017_int_peak = 12.2

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

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

Peak Compiler Invocation

C benchmarks (except as noted below):
  icx
  600.perlbench_s: icc

C++ benchmarks:
  icpx

Fortran benchmarks:
  ifort

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

  600.perlbench_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2)
  -xCORE-AVX512 -ipo -O3 -no-prec-div
  -qopt-mem-layout-trans=4 -fno-strict-overflow
  -mbranches-within-32B-boundaries
  -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

  602.gcc_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)
  -fprofile-use=default.profdatalib(pass 2) -xCORE-AVX512 -flto
  -Ofast(pass 1) -O3 -ffast-math -qopt-mem-layout-trans=4
  -mbranches-within-32B-boundaries
  -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

  605.mcf_s: basepeak = yes

  625.x264_s: -DSPEC_OPENMP -fiopenmp -std=c11 -m64 -Wl,-z,muldefs
  -xCORE-AVX512 -flto -O3 -ffast-math
  -qopt-mem-layout-trans=4 -fno-alias
  -mbranches-within-32B-boundaries
  -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

  657.xz_s: basepeak = yes

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

### C++ benchmarks:

- `620.omnetpp_s`: basepeak = yes
- `623.xalancbmk_s`: basepeak = yes
- `631.deepsjeng_s`: basepeak = yes
- `641.leela_s`: basepeak = yes

### Fortran benchmarks:

- `648.exchange2_s`: 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: