## Dell Inc.

**PowerEdge T640 (Intel Xeon Gold 5218R, 2.10 GHz)**

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

### CPU2017 Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>80 Threads</th>
<th>SPECspeed²017_int_base</th>
<th>SPECspeed²017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>6.81</td>
<td>7.82</td>
<td>11.3</td>
</tr>
<tr>
<td>gcc</td>
<td>9.67</td>
<td>13.7</td>
<td>23.5</td>
</tr>
<tr>
<td>mcf</td>
<td>9.96</td>
<td>16.1</td>
<td></td>
</tr>
<tr>
<td>omnetpp</td>
<td>9.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>xalancbmk</td>
<td>16.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>x264</td>
<td>18.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>deepsjeng</td>
<td>5.90</td>
<td>16.6</td>
<td></td>
</tr>
<tr>
<td>leela</td>
<td>4.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>exchange2</td>
<td>16.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>xz</td>
<td>13.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Gold 5218R  
- **Max MHz:** 4000  
- **Nominal:** 2100  
- **Enabled:** 40 cores, 2 chips, 2 threads/core  
- **Orderable:** 1.2 chips  
- **Cache L1:** 32 KB I + 32 KB D on chip per core  
- **L2:** 1 MB I+D on chip per core  
- **L3:** 27.5 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 384 GB (24 x 16 GB 2Rx8 PC4-2933Y-R, running at 2666)  
- **Storage:** 1 x 1.92 TB SATA SSD  
- **Other:** None  
- **Parallel:** Yes  
- **Compiler:** C/C++: Version 19.1.1.217 of Intel C/C++ Compiler for Linux; Fortran: Version 19.1.1.217 of Intel Fortran Compiler for Linux  
- **Firmware:** Version 2.7.7 released May-2020  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 64-bit  
- **Other:** None  
- **OS:** Red Hat Enterprise Linux 8.1  
- **Compiler:** kernel 4.18.0-147.8.1.el8_1.x86_64  
- **Firmware:** Version 2.7.7 released May-2020  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 64-bit  
- **Other:** None  
- **jemalloc memory allocator V5.0.1**  
- **BIOS set to prefer performance at the cost of additional power usage.**

---

Dell Inc.

PowerEdge T640 (Intel Xeon Gold 5218R, 2.10 GHz)

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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>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>80</td>
<td>260</td>
<td>6.81</td>
<td>259</td>
<td>6.84</td>
<td>80</td>
<td>227</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>80</td>
<td>411</td>
<td>9.68</td>
<td>412</td>
<td>9.67</td>
<td>80</td>
<td>400</td>
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<tr>
<td>605.mcf_s</td>
<td>80</td>
<td>262</td>
<td>18.0</td>
<td>260</td>
<td>18.1</td>
<td>80</td>
<td>262</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>80</td>
<td>169</td>
<td>9.64</td>
<td>160</td>
<td>10.2</td>
<td>80</td>
<td>169</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>80</td>
<td>104</td>
<td>13.7</td>
<td>104</td>
<td>13.7</td>
<td>80</td>
<td>104</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>80</td>
<td>110</td>
<td>16.1</td>
<td>109</td>
<td>16.1</td>
<td>80</td>
<td>106</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>80</td>
<td>243</td>
<td>5.91</td>
<td>243</td>
<td>5.90</td>
<td>80</td>
<td>243</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>80</td>
<td>349</td>
<td>4.89</td>
<td>349</td>
<td>4.89</td>
<td>80</td>
<td>349</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>80</td>
<td>174</td>
<td>16.9</td>
<td>174</td>
<td>16.9</td>
<td>80</td>
<td>174</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>80</td>
<td>263</td>
<td>23.5</td>
<td>263</td>
<td>23.5</td>
<td>80</td>
<td>263</td>
</tr>
</tbody>
</table>

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

Compiler Notes

The inconsistent Compiler version information under Compiler Version section is due to a discrepancy in Intel Compiler.
The correct version of C/C++ compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux
The correct version of Fortran compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux

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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"
**SPEC CPU®2017 Integer Speed Result**

**Dell Inc.**

PowerEdge T640 (Intel Xeon Gold 5218R, 2.10 GHz)

<table>
<thead>
<tr>
<th>Specspeed®2017_int_base</th>
<th>11.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specspeed®2017_int_peak</td>
<td>11.3</td>
</tr>
</tbody>
</table>

---

**CPU2017 License:** 55
**Test Date:** May-2020
**Hardware Availability:** Feb-2020

**Test Sponsor:** Dell Inc.
**Software Availability:** Apr-2020
**Tested by:** Dell Inc.

---

### General Notes

Binaries compiled on a system with 1x Intel Core i9–9900K CPU + 64GB RAM memory using Redhat Enterprise Linux 8.0

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:

```bash
sync; echo 3>/proc/sys/vm/drop_caches
```

runcpu command invoked through numactl i.e.:

```bash
numactl --interleave=all runcpu <etc>
```


---

### Platform Notes

BIOS settings:

- Sub NUMA Cluster enabled
- Virtualization Technology disabled
- System Profile set to Custom
- CPU Performance set to Maximum Performance
- C States set to Autonomous
- C1E disabled
- Uncore Frequency set to Dynamic
- Energy Efficiency Policy set to Performance
- Memory Patrol Scrub disabled
- Logical Processor enabled
- CPU Interconnect Bus Link Power Management disabled
- PCI ASPM L1 Link Power Management disabled
- UPI Prefetch enabled
- LLC Prefetch disabled
- Dead Line LLC Alloc enabled
- Directory AtoS disabled

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011
running on poweredge-sut-rhel8-1 Mon Jul 27 03:35:14 2020

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

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

Dell Inc.

PowerEdge T640 (Intel Xeon Gold 5218R, 2.10 GHz)

SPECspeed®2017_int_base = 11.1

SPECspeed®2017_int_peak = 11.3

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

From /proc/cpuinfo

model name : Intel(R) Xeon(R) Gold 5218R CPU @ 2.10GHz
2 "physical id"s (chips)
80 "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 : 20
siblings : 40
physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 80
On-line CPU(s) list: 0-79
Thread(s) per core: 2
Core(s) per socket: 20
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 5218R CPU @ 2.10GHz
Stepping: 7
CPU MHz: 1803.217
CPU max MHz: 4000.0000
CPU min MHz: 800.0000
BogoMIPS: 4200.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 28160K
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
60,62,64,66,68,70,72,74,76,78
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
61,63,65,67,69,71,73,75,77,79
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 art 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
xonr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3

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

PowerEdge T640 (Intel Xeon Gold 5218R, 2.10 GHz)

SPECspeed®2017_int_base = 11.1
SPECspeed®2017_int_peak = 11.3

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

Platform Notes (Continued)

invpcid_single intel_ppin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority vpt vpg fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 ets invpcid rtm cmq mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local dtherm ida arat pln pts pku ospke avx512_vnni md_clear flush_lld arch_capabilities

/proc/cpuinfo cache data
  cache size : 28160 KB

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 64 66 68 70 72 74 76 78
  node 0 size: 192070 MB
  node 0 free: 190871 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 65 67 69 71 73 75 77 79
  node 1 size: 193502 MB
  node 1 free: 191169 MB
  node distances:
    node 0 1
    0: 10 21
    1: 21 10

From /proc/meminfo
  MemTotal: 394826356 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux"
    VERSION="8.1 (Ootpa)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="8.1"
    PLATFORM_ID="platform:el8"
    PRETTY_NAME="Red Hat Enterprise Linux 8.1 (Ootpa)"
    ANSI_COLOR="0;31"
  redhat-release: Red Hat Enterprise Linux release 8.1 (Ootpa)
  system-release: Red Hat Enterprise Linux release 8.1 (Ootpa)
  system-release-cpe: cpe:/o:redhat:enterprise_linux:8.1:ga

uname -a:
  Linux poweredge-sut-rhel8-1 4.18.0-147.8.1.el8_1.x86_64 #1 SMP Wed Feb 26 03:08:15 UTC

(Continued on next page)
Dell Inc.

PowerEdge T640 (Intel Xeon Gold 5218R, 2.10 GHz)

SPECspeed®2017_int_base = 11.1
SPECspeed®2017_int_peak = 11.3

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

Test Date: May-2020
Hardware Availability: Feb-2020
Software Availability: Apr-2020

Platform Notes (Continued)

2020 x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

<table>
<thead>
<tr>
<th>Vulnerability</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>itlb_multihit</td>
<td>Processor vulnerable</td>
</tr>
<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 sanitation</td>
</tr>
<tr>
<td>CVE-2017-5715 (Spectre variant 2)</td>
<td>Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling</td>
</tr>
<tr>
<td>tsx_async_abort</td>
<td>Mitigation: Clear CPU buffers; SMT vulnerable</td>
</tr>
</tbody>
</table>

run-level 3 Jul 23 04:22 last=5

SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 1.5T 20G 1.4T 2% /home

From /sys/devices/virtual/dmi/id
BIOS: Dell Inc. 2.7.7 05/05/2020
Vendor: Dell Inc.
Product: PowerEdge T640
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:

<table>
<thead>
<tr>
<th>Memory Location</th>
<th>Capacity</th>
<th>Bank</th>
<th>Rank</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>14x 002C069D002C 18ASF2G72PDZ-2G9E1</td>
<td>16 GB</td>
<td>2</td>
<td>rank 2933</td>
<td></td>
</tr>
<tr>
<td>5x 00AD00B300AD HMA82GR7CJR8N-WM</td>
<td>16 GB</td>
<td>2</td>
<td>rank 2933</td>
<td></td>
</tr>
<tr>
<td>1x 00AD063200AD HMA82GR7CJR8N-WM</td>
<td>16 GB</td>
<td>2</td>
<td>rank 2933</td>
<td></td>
</tr>
<tr>
<td>4x 00AD069D00AD HMA82GR7CJR8N-WM</td>
<td>16 GB</td>
<td>2</td>
<td>rank 2933</td>
<td></td>
</tr>
</tbody>
</table>

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
<table>
<thead>
<tr>
<th>C</th>
<th>600.perlbench_s(base) 602.gcc_s(base, peak) 605.mcf_s(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>625.x264_s(base, peak) 657.xz_s(base, peak)</td>
</tr>
</tbody>
</table>

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Dell Inc.

PowerEdge T640 (Intel Xeon Gold 5218R, 2.10 GHz)

**SPEC CPU®2017 Integer Speed Result**

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Tested by: Dell Inc.

---

**Compiler Version Notes (Continued)**

---

Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

------------------------------------------------------------------------------
C       | 600.perlbench_s(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

------------------------------------------------------------------------------
C       | 600.perlbench_s(base) 602.gcc_s(base, peak) 605.mcf_s(base, peak)
       | 625.x264_s(base, peak) 657.xz_s(base, peak)
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

------------------------------------------------------------------------------
C       | 600.perlbench_s(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

------------------------------------------------------------------------------
C++      | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak)
       | 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)
------------------------------------------------------------------------------
Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

------------------------------------------------------------------------------
Fortran  | 648.exchange2_s(base, peak)
------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
64, Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

---

CPU2017 License: 55
Test Sponsor: Dell Inc.
Hardware Availability: Feb-2020
Tested by: Dell Inc.
Software Availability: Apr-2020

---

SPECspeed®2017_int_base = 11.1
SPECspeed®2017_int_peak = 11.3
## SPEC CPU®2017 Integer Speed Result

### Dell Inc.

**PowerEdge T640 (Intel Xeon Gold 5218R, 2.10 GHz)**

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base = 11.1</th>
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<tr>
<td><strong>CPU2017 License:</strong> 55</td>
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</tr>
<tr>
<td><strong>Tested by:</strong> Dell Inc.</td>
<td><strong>Software Availability:</strong> Apr-2020</td>
</tr>
</tbody>
</table>

### Base Compiler Invocation

- **C benchmarks:**
  - icc

- **C++ benchmarks:**
  - icpc

- **Fortran benchmarks:**
  - ifort

### Base Portability Flags

- `600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64`
- `602.gcc_s: -DSPEC_LP64`
- `605.mcf_s: -DSPEC_LP64`
- `620.omnetpp_s: -DSPEC_LP64`
- `623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX`
- `625.x264_s: -DSPEC_LP64`
- `631.deepsjeng_s: -DSPEC_LP64`
- `641.leela_s: -DSPEC_LP64`
- `648.exchange2_s: -DSPEC_LP64`
- `657.xz_s: -DSPEC_LP64`

### Base Optimization Flags

#### C benchmarks:

- `m64 -qnextgen -std=c11`
- `-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs`
- `-xCORE-AVX512 -O3 -ffast-math -ftlo -mfpmath=sse -funroll-loops`
- `-fuse-ld=gold -qopt-mem-layout-trans=4 -fopenmp -DSPEC_OPENMP`
- `-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

#### C++ benchmarks:

- `m64 -qnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries`
- `-Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -ftlo -mfpmath=sse`
- `-funroll-loops -fuse-ld=gold -qopt-mem-layout-trans=4`
- `-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin -ljqkmalloc`

#### Fortran benchmarks:

- `m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -xCORE-AVX512`
- `-O3 -ipo -no-prec-div -qopt-mem-layout-trans=4`
- `-nostandard-realloc-lhs -align array32byte`

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Dell Inc. PowerEdge T640 (Intel Xeon Gold 5218R, 2.10 GHz)

SPEC CPU®2017 Integer Speed Result

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SPECspeed®2017_int_base = 11.1
SPECspeed®2017_int_peak = 11.3

---

### Base Optimization Flags (Continued)

Fortran benchmarks (continued):
- `-mbranches-within-32B-boundaries`

---

### Peak Compiler Invocation

C benchmarks:
- `icc`

C++ benchmarks:
- `icpc`

Fortran benchmarks:
- `ifort`

---

### Peak Portability Flags

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64(*) -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

(*) Indicates a portability flag that was found in a non-portability variable.

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### Peak Optimization Flags

C benchmarks:

600.perlbench_s: -W1, -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

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

- **602.gcc_s**: `-m64 -qnextgen -std=c11 -fuse-ld=gold -Wl,-z,muldefs -fprofile-generate(pass 1) -fprofile-use=default.profdata(pass 2) -xCORE-AVX512 -flto -Ofast(pass 1) -O3 -ffast-math -gopt-mem-layout-trans=4 -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

- **605.mcf_s**: basepeak = yes

- **625.x264_s**: `-m64 -qnextgen -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -flto -O3 -ffast-math -fuse-ld=gold -gopt-mem-layout-trans=4 -fno-alias -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

- **657.xz_s**: basepeak = yes

**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:


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Tested with SPEC CPU®2017 v1.1.0 on 2020-07-27 04:35:13-0400.

Report generated on 2020-08-18 14:42:03 by CPU2017 PDF formatter v6255.

Originally published on 2020-08-18.