Dell Inc.

PowerEdge M640 (Intel Xeon Gold 6152, 2.10Ghz)

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

**Hardware**

CPU Name: Intel Xeon Gold 6152
Max MHz.: 3700
Nominal: 2100
Enabled: 44 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: 30.25 MB I+D on chip per chip
Other: None

Memory: 192 GB (12 x 16 GB 2Rx8 PC4-2666V-R)
Storage: 960 GB SATA SSD
Other: None

**Software**

OS: SUSE Linux Enterprise Server 12 SP3 (x86_64)
Compiler: C/C++: Version 18.0.0.128 of Intel C/C++
Compiler for Linux;
Fortran: Version 18.0.0.128 of Intel Fortran
Compiler for Linux
Parallel: Yes
Firmware: Version 1.0.0 released Aug-2017
File System: btrfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc: jemalloc memory allocator library V5.0.1;

**SPECspeed2017_int_base = 8.93**
**SPECspeed2017_int_peak = Not Run**

---

**Threads**

- **600.perlbench_s**
- **602.gcc_s**
- **605.mcf_s**
- **620.omnetpp_s**
- **623.xalanchmk_s**
- **625.x264_s**
- **631.deepsjeng_s**
- **641.leela_s**
- **648.exchange2_s**
- **657.xz_s**

---

**SPECspeed2017_int_base (8.93)**

---

**Notes:**

- **CPU**
  - Name: Intel Xeon Gold 6152
  - Max MHz.: 3700
  - Nominal: 2100
  - Enabled: 44 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: 30.25 MB I+D on chip per chip
  - Other: None

- **Memory**
  - 192 GB (12 x 16 GB 2Rx8 PC4-2666V-R)

- **Storage**
  - 960 GB SATA SSD

---

**Software**

- OS: SUSE Linux Enterprise Server 12 SP3 (x86_64)
- Compiler: C/C++: Version 18.0.0.128 of Intel C/C++
- Compiler for Linux;
- Fortran: Version 18.0.0.128 of Intel Fortran
- Compiler for Linux
- Parallel: Yes
- Firmware: Version 1.0.0 released Aug-2017
- File System: btrfs
- System State: Run level 3 (multi-user)
- Base Pointers: 64-bit
- Peak Pointers: 32/64-bit
- Other: jemalloc: jemalloc memory allocator library V5.0.1;
Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>88</td>
<td>287</td>
<td>6.18</td>
<td>285</td>
<td>6.22</td>
<td>285</td>
<td>6.23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>88</td>
<td>417</td>
<td>9.56</td>
<td>424</td>
<td>9.39</td>
<td>428</td>
<td>9.31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>88</td>
<td>441</td>
<td>10.7</td>
<td>433</td>
<td>10.9</td>
<td>434</td>
<td>10.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>88</td>
<td>241</td>
<td>6.78</td>
<td>238</td>
<td>6.85</td>
<td>228</td>
<td>7.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>88</td>
<td>151</td>
<td>9.37</td>
<td>150</td>
<td>9.47</td>
<td>149</td>
<td>9.49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>88</td>
<td>150</td>
<td>11.8</td>
<td>150</td>
<td>11.8</td>
<td>151</td>
<td>11.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>88</td>
<td>285</td>
<td>5.03</td>
<td>284</td>
<td>5.04</td>
<td>284</td>
<td>5.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>88</td>
<td>394</td>
<td>4.33</td>
<td>393</td>
<td>4.34</td>
<td>393</td>
<td>4.34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>88</td>
<td>222</td>
<td>13.2</td>
<td>220</td>
<td>13.4</td>
<td>221</td>
<td>13.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>88</td>
<td>269</td>
<td>23.0</td>
<td>271</td>
<td>22.8</td>
<td>270</td>
<td>22.9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPECspeed2017_int_base = 8.93
SPECspeed2017_int_peak = Not Run

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"

General Notes

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.4
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

jemalloc: configured and built at default for 32bit (i686) and 64bit (x86_64) targets;
jemalloc: built with the RedHat Enterprise 7.4, and the system compiler gcc 4.8.5;
jemalloc: sources available via jemalloc.net

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
No: 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.
No: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
General Notes (Continued)

is mitigated in the system as tested and documented.

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC OSG Policy document, http://www.spec.org/osg/policy.html

This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

Platform Notes

BIOS settings:
Virtualization Technology disabled
System Profile set to Custom
CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost enabled
C States disabled
Memory Patrol Scrub disabled
PCI ASPM L1 Link Power Management disabled
Sysinfo program /root/cpu2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on linux-ejwa Wed Nov 22 00:39:56 2017

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 6152 CPU @ 2.10GHz
  2 "physical id"s (chips)
  88 "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 : 22
siblings : 44
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28

(Continued on next page)
Dell Inc.
PowerEdge M640 (Intel Xeon Gold 6152, 2.10Ghz)

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

SPECspeed2017_int_base = 8.93
SPECspeed2017_int_peak = Not Run

Platform Notes (Continued)

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 88
On-line CPU(s) list: 0-87
Thread(s) per core: 2
Core(s) per socket: 22
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6152 CPU @ 2.10GHz
Stepping: 4
CPU MHz: 2095.098
BogoMIPS: 4190.19
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 30976K
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,
60,62,64,66,68,70,72,74,76,78,80,82,84,86
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,
61,63,65,67,69,71,73,75,77,79,81,83,85,87
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush dtst 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
aperfmperf eagerfpu pni pclmulqdq dtstes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
xsdav avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb pln pts dtherm intel_pt
tpr_shadow vmmi flexpriority ept vpid fsgsbse tsc_adjust bmi1 hle avx2 smep bmi2
erms invpcid rtm cqm mpx avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd
avx512bw avx512vl xsaveopt xsavec xgetbv1 cqm_llc cqm_occup_llc pkp ospke

/proc/cpuinfo cache data
cache size : 30976 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 80 82 84 86
node 0 size: 95335 MB

(Continued on next page)
Dell Inc.

PowerEdge M640 (Intel Xeon Gold 6152, 2.10Ghz)

SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

SPECspeed2017_int_base = 8.93
SPECspeed2017_int_peak = Not Run

CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: Nov-2017
Tested by: Dell Inc.
Hardware Availability: Sep-2017
Software Availability: Sep-2017

Platform Notes (Continued)

node 0 free: 94770 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 81 83 85 87
node 1 size: 96736 MB
node 1 free: 96208 MB
node distances:
node 0 1
  0: 10 21
  1: 21 10

From /proc/meminfo
MemTotal: 196682072 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release*/etc/*version*
SuSE-release:
  VERSION = 12
  PATCHLEVEL = 3
  # This file is deprecated and will be removed in a future service pack or release.
  # Please check /etc/os-release for details about this release.
os-release:
  NAME="SLES"
  VERSION="12-SP3"
  VERSION_ID="12.3"
  PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
  ID="sles"
  ANSI_COLOR="0;32"
  CPE_NAME="cpe:/o:suse:sles:12:sp3"

uname -a:
  Linux linux-ejwa 4.4.70-2-default #1 SMP Wed Jun 7 15:12:06 UTC 2017 (4502c76) x86_64
  x86_64 x86_64 GNU/Linux

run-level 3 Nov 22 00:08

SPEC is set to: /root/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 btrfs 855G 25G 831G 3% /

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.
BIOS Dell Inc. 1.0.0 08/10/2017
Memory:
Dell Inc.

PowerEdge M640 (Intel Xeon Gold 6152, 2.10Ghz)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base = 8.93</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak = Not Run</td>
</tr>
</tbody>
</table>

---

**Platform Notes (Continued)**

9x 002C00B3002C 18ASF2G72PDZ-2G6D1 16 GB 2 rank 2666  
3x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666  
4x Not Specified Not Specified  

(End of data from sysinfo program)

---

**Compiler Version Notes**

```
CC 600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base)  
657.xz_s(base)
```

```
icc (ICC) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

```
CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)  
641.leela_s(base)
```

```
icpc (ICC) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

```
FC 648.exchange2_s(base)
```

```
ifort (IFORT) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

---

**Base Compiler Invocation**

- **C benchmarks:**
  - icc

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

- **Fortran benchmarks:**
  - ifort
Dell Inc.

PowerEdge M640 (Intel Xeon Gold 6152, 2.10Ghz)

**SPECspeed2017_int_base = 8.93**

**SPECspeed2017_int_peak = Not Run**

---

**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:**
- Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
- q-opt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
- L/usr/local/je5.0.1-64/lib -ljemalloc

**C++ benchmarks:**
- Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
- q-opt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

**Fortran benchmarks:**
- Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
- q-opt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
- L/usr/local/je5.0.1-64/lib -ljemalloc

---

**Base Other Flags**

**C benchmarks:**
- m64 -std=c11

**C++ benchmarks:**
- m64

**Fortran benchmarks:**
- m64
**SPEC CPU2017 Integer Speed Result**

**Dell Inc.**

PowerEdge M640 (Intel Xeon Gold 6152, 2.10Ghz)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>8.93</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**Dell Inc.**

Test Sponsor: Dell Inc.

Test Date: Nov-2017

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Sep-2017

CPU2017 License: 55

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:


SPEC is a registered trademark 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 CPU2017 v1.0.2 on 2017-11-22 01:39:56-0500.


Originally published on 2018-02-27.