Dell Inc.

PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)

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

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base = 8.37</th>
<th>SPECspeed2017_int_peak = 8.64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell Inc.</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td><strong>CPU2017 License:</strong> 55</td>
<td><strong>Test Date:</strong> Dec-2019</td>
</tr>
<tr>
<td><strong>Test Sponsor:</strong> Dell Inc.</td>
<td><strong>Hardware Availability:</strong> Feb-2019</td>
</tr>
<tr>
<td><strong>Tested by:</strong> Dell Inc.</td>
<td><strong>Software Availability:</strong> Aug-2019</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** AMD EPYC 7H12  
- **Max MHz:** 3300  
- **Nominal:** 2600  
- **Enabled:** 128 cores, 2 chips  
- **Orderable:** 1.2 chips  
- **Cache L1:** 32 KB I + 32 KB D on chip per core  
- **L2:** 512 KB I+D on chip per core  
- **L3:** 256 MB I+D on chip per chip, 16 MB shared / 4 cores  
- **Other:** None  
- **Memory:** 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R)  
- **Storage:** 1 x 960 GB SATA SSD  
- **Other:** None  

### Software

- **OS:** SUSE Linux Enterprise Server 15 SP1  
- **Compiler:** C/C++/Fortran: Version 2.0.0 of AOCC  
- **Parallel:** Yes  
- **Firmware:** Version 1.2.4 released Nov-2019  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 32/64-bit  
- **Other:** jemalloc: jemalloc memory allocator library v5.1.0  
- **Power Management:** BIOS set to prefer performance at the cost of additional power usage.

---

**Threads**  
<table>
<thead>
<tr>
<th>SPECspeed2017_int_base = 8.37</th>
<th>SPECspeed2017_int_peak = 8.64</th>
</tr>
</thead>
<tbody>
<tr>
<td>128</td>
<td></td>
</tr>
<tr>
<td><strong>600.perlbench_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>602.gcc_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>605.mcf_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>620.omnetpp_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>623.xalancbmk_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>625.x264_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>631.deepsjeng_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>641.leela_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>648.exchange2_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>657.xz_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

---

**Performance Results**  
<table>
<thead>
<tr>
<th>SPECspeed2017_int_base = 8.37</th>
<th>SPECspeed2017_int_peak = 8.64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threads</td>
<td></td>
</tr>
<tr>
<td>128</td>
<td></td>
</tr>
<tr>
<td><strong>600.perlbench_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4.58</td>
</tr>
<tr>
<td><strong>602.gcc_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>9.27</td>
</tr>
<tr>
<td><strong>605.mcf_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4.36</td>
</tr>
<tr>
<td><strong>620.omnetpp_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4.72</td>
</tr>
<tr>
<td><strong>623.xalancbmk_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>9.00</td>
</tr>
<tr>
<td><strong>625.x264_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>9.87</td>
</tr>
<tr>
<td><strong>631.deepsjeng_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4.65</td>
</tr>
<tr>
<td><strong>641.leela_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4.08</td>
</tr>
<tr>
<td><strong>648.exchange2_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>16.0</td>
</tr>
<tr>
<td><strong>657.xz_s</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>20.2</td>
</tr>
</tbody>
</table>
### Dell Inc. PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)

**SPECspeed®2017_int_base = 8.37**

**SPECspeed®2017_int_peak = 8.64**

### 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>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>128</td>
<td>384</td>
<td>4.62</td>
<td>388</td>
<td>4.58</td>
<td>1</td>
<td>365</td>
<td>4.86</td>
<td>370</td>
<td>4.80</td>
<td>1</td>
<td>313</td>
<td>15.1</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>128</td>
<td>429</td>
<td>9.27</td>
<td>428</td>
<td>9.30</td>
<td>1</td>
<td>431</td>
<td>9.23</td>
<td>433</td>
<td>9.21</td>
<td>1</td>
<td>446</td>
<td>9.67</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>128</td>
<td>338</td>
<td>14.0</td>
<td>338</td>
<td>14.0</td>
<td>1</td>
<td>313</td>
<td>15.1</td>
<td>313</td>
<td>15.1</td>
<td>1</td>
<td>346</td>
<td>12.3</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>128</td>
<td>346</td>
<td>4.72</td>
<td>374</td>
<td>4.36</td>
<td>1</td>
<td>346</td>
<td>4.72</td>
<td>346</td>
<td>4.72</td>
<td>1</td>
<td>144</td>
<td>12.3</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>128</td>
<td>157</td>
<td>9.00</td>
<td>156</td>
<td>9.07</td>
<td>1</td>
<td>146</td>
<td>9.67</td>
<td>146</td>
<td>9.69</td>
<td>1</td>
<td>144</td>
<td>12.3</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>128</td>
<td>147</td>
<td>12.0</td>
<td>149</td>
<td>11.8</td>
<td>1</td>
<td>144</td>
<td>12.3</td>
<td>144</td>
<td>12.3</td>
<td>1</td>
<td>144</td>
<td>12.3</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>128</td>
<td>308</td>
<td>4.65</td>
<td>305</td>
<td>4.70</td>
<td>1</td>
<td>302</td>
<td>4.75</td>
<td>302</td>
<td>4.74</td>
<td>1</td>
<td>422</td>
<td>4.04</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>128</td>
<td>417</td>
<td>4.09</td>
<td>418</td>
<td>4.08</td>
<td>1</td>
<td>422</td>
<td>4.04</td>
<td>424</td>
<td>4.03</td>
<td>1</td>
<td>422</td>
<td>4.04</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>128</td>
<td>184</td>
<td>16.0</td>
<td>183</td>
<td>16.0</td>
<td>1</td>
<td>183</td>
<td>16.0</td>
<td>184</td>
<td>16.0</td>
<td>1</td>
<td>184</td>
<td>16.0</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>128</td>
<td>305</td>
<td>20.3</td>
<td>306</td>
<td>20.2</td>
<td>128</td>
<td>306</td>
<td>20.2</td>
<td>305</td>
<td>20.2</td>
<td>1</td>
<td>306</td>
<td>20.2</td>
</tr>
</tbody>
</table>

### Compiler Notes

The AMD64 AOCC Compiler Suite is available at
http://developer.amd.com/amd-aocc/

### Submit Notes

The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
See the configuration file for details.

### Operating System Notes

'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2097152' was used to set environment locked pages in memory limit
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

Set dirty_ratio=8 to limit dirty cache to 8% of memory
Set swappiness=1 to swap only if necessary
Set zone_reclaim_mode=1 to free local node memory and avoid remote memory
sync then drop_caches=3 to reset caches before invoking runcpu
dirty_ratio, swappiness, zone_reclaim_mode and drop_caches were
all set using privileged echo (e.g. echo 1 > /proc/sys/vm/swappiness).

Transparent huge pages set to 'always' for this run (OS default)
Environment Variables Notes

Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-127"
LD_LIBRARY_PATH =
"/root/cpu2017-1.1.0/amd_speed_aocc200_rome_C_lib/64;/root/cpu2017-1.1.0
/amd_speed_aocc200_rome_C_lib/32;"
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "128"

Environment variables set by runcpu during the 600.perlbench_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 602.gcc_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 605.mcf_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 620.omnetpp_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 623.xalancbmk_s peak run:
GOMP_CPU_AFFINITY = "0"
OMP_STACKSIZE = "128M"

Environment variables set by runcpu during the 625.x264_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 631.deepsjeng_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 641.leela_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 648.exchange2_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 657.xz_s peak run:
GOMP_CPU_AFFINITY = "0-127"
Dell Inc.

PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)

SPECspeed®2017_int_base = 8.37
SPECspeed®2017_int_peak = 8.64

<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>
<tr>
<td>Test Date:</td>
<td>Dec-2019</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Feb-2019</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Aug-2019</td>
</tr>
</tbody>
</table>

**General Notes**

Binaries were compiled on a system with 2x AMD EPYC 7601 CPU + 512GB Memory using Fedora 26

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.

jemalloc: configured and built with GCC v9.1.0 in Ubuntu 19.04 with -O3 -znver2 -flto
jemalloc 5.1.0 is available here:
https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2

**Platform Notes**

BIOS settings:
NUMA Nodes Per Socket set to 4
CCX as NUMA Domain set to Enabled
System Profile set to Custom
CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost Enabled
Cstates set to Enabled
Memory Patrol Scrub Disabled
Memory Refresh Rate set to 1x
PCI ASPM L1 Link Power Management Disabled
Determinism Slider set to Power Determinism
Efficiency Optimized Mode Disabled
Memory Interleaving set to Disabled
Logical Processor disabled

Sysinfo program /root/cpu2017-1.1.0/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edeb1e6e46a485a0011
running on linux-g3ob Thu Dec 5 04:44:50 2019

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 : AMD EPYC 7H12 64-Core Processor
  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.)

(Continued on next page)
Dell Inc.

PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base = 8.37</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak = 8.64</td>
</tr>
</tbody>
</table>

CPU2017 License: 55  
Test Sponsor: Dell Inc.  
Test Date: Dec-2019  
Hardware Availability: Feb-2019  
Tested by: Dell Inc.  
Software Availability: Aug-2019

Platform Notes (Continued)

cpu cores : 64
siblings : 64
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 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
physical 1: 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 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
Address sizes: 43 bits physical, 48 bits virtual
CPU(s): 128
On-line CPU(s) list: 0-127
Thread(s) per core: 1
Core(s) per socket: 64
Socket(s): 2
NUMA node(s): 32
Vendor ID: AuthenticAMD
CPU family: 23
Model: 49
Model name: AMD EPYC 7H12 64-Core Processor
Stepping: 0
CPU MHz: 2595.391
BogoMIPS: 5190.78
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K
L2 cache: 512K
L3 cache: 16384K
NUMA node0 CPU(s): 0-3
NUMA node1 CPU(s): 4-7
NUMA node2 CPU(s): 8-11
NUMA node3 CPU(s): 12-15
NUMA node4 CPU(s): 16-19
NUMA node5 CPU(s): 20-23
NUMA node6 CPU(s): 24-27
NUMA node7 CPU(s): 28-31
NUMA node8 CPU(s): 32-35
NUMA node9 CPU(s): 36-39
NUMA node10 CPU(s): 40-43
NUMA node11 CPU(s): 44-47
NUMA node12 CPU(s): 48-51
NUMA node13 CPU(s): 52-55
NUMA node14 CPU(s): 56-59

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

**Dell Inc.**

PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base = 8.37</th>
<th>SPECspeed®2017_int_peak = 8.64</th>
</tr>
</thead>
</table>

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

**Test Date:** Dec-2019
**Hardware Availability:** Feb-2019
**Software Availability:** Aug-2019

### Platform Notes (Continued)

NUMA node15 CPU(s): 60-63
NUMA node16 CPU(s): 64-67
NUMA node17 CPU(s): 68-71
NUMA node18 CPU(s): 72-75
NUMA node19 CPU(s): 76-79
NUMA node20 CPU(s): 80-83
NUMA node21 CPU(s): 84-87
NUMA node22 CPU(s): 88-91
NUMA node23 CPU(s): 92-95
NUMA node24 CPU(s): 96-99
NUMA node25 CPU(s): 100-103
NUMA node26 CPU(s): 104-107
NUMA node27 CPU(s): 108-111
NUMA node28 CPU(s): 112-115
NUMA node29 CPU(s): 116-119
NUMA node30 CPU(s): 120-123
NUMA node31 CPU(s): 124-127

Flags: fpu vme de pse tsc msr pae mca cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm constant_tsc rep_good nopl xtopology nonstop_tsc cpuid extd_apicid aperfmperf pni pclmulqdq monitor ssse3 fma cx16 sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch osvw ibs kini wt tce topeoext perfctr_core perfctr_nb bpext perfctr_l2 mwaitx cpb cat_l3 cdp_l3 hw_pstate sse ssbd sev ibps stibp vmmcall fsgsbase bm1 avx2 smep bm12 cqm rdtd_a rdseed adx smap clflushopt clwb sha ni xsavmeopt xsave cxtsaves cqm_tmsave cqm_mbb cqm_mbb_total cqm_mbb_local czero irperf xsaveepr atar npt lbrv svm_lock np_save tsc_scale vmbc_clean flushbyasid decodeassists pausefilter pfnthrehold avic v_mmsave_vmload vgif umip rdpid overlow_reco succor smca

```
/proc/cpuinfo cache data
  cache size : 512 KB
```

From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 32 nodes (0-31)
node 0 cpus: 0 1 2 3
node 0 size: 15676 MB
node 0 free: 15616 MB
node 1 cpus: 4 5 6 7
node 1 size: 16127 MB
node 1 free: 16077 MB
node 2 cpus: 8 9 10 11
node 2 size: 16127 MB
node 2 free: 16081 MB
node 3 cpus: 12 13 14 15
node 3 size: 16126 MB

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

**Dell Inc.**

**PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)**

### Platform Notes (Continued)

- node 3 free: 16073 MB
- node 4 cpus: 16 17 18 19
- node 4 size: 16127 MB
- node 4 free: 16079 MB
- node 5 cpus: 20 21 22 23
- node 5 size: 16127 MB
- node 5 free: 16087 MB
- node 6 cpus: 24 25 26 27
- node 6 size: 16127 MB
- node 6 free: 16081 MB
- node 7 cpus: 28 29 30 31
- node 7 size: 16126 MB
- node 7 free: 16035 MB
- node 8 cpus: 32 33 34 35
- node 8 size: 16127 MB
- node 8 free: 16018 MB
- node 9 cpus: 36 37 38 39
- node 9 size: 16127 MB
- node 9 free: 16037 MB
- node 10 cpus: 40 41 42 43
- node 10 size: 16127 MB
- node 10 free: 15989 MB
- node 11 cpus: 44 45 46 47
- node 11 size: 16126 MB
- node 11 free: 16021 MB
- node 12 cpus: 48 49 50 51
- node 12 size: 16127 MB
- node 12 free: 15992 MB
- node 13 cpus: 52 53 54 55
- node 13 size: 16127 MB
- node 13 free: 16076 MB
- node 14 cpus: 56 57 58 59
- node 14 size: 16127 MB
- node 14 free: 16087 MB
- node 15 cpus: 60 61 62 63
- node 15 size: 16114 MB
- node 15 free: 16019 MB
- node 16 cpus: 64 65 66 67
- node 16 size: 16127 MB
- node 16 free: 16094 MB
- node 17 cpus: 68 69 70 71
- node 17 size: 16127 MB
- node 17 free: 16097 MB
- node 18 cpus: 72 73 74 75
- node 18 size: 16127 MB
- node 18 free: 16098 MB
- node 19 cpus: 76 77 78 79

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

### Dell Inc.

**PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)**

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

**SPECspeed®2017_int_base = 8.37**  
**SPECspeed®2017_int_peak = 8.64**

**Test Date:** Dec-2019  
**Hardware Availability:** Feb-2019  
**Software Availability:** Aug-2019

### Platform Notes (Continued)

```plaintext
node 19 size:   16126 MB  
node 19 free:   16096 MB  
node 20 cpus:   80  81  82  83  
node 20 size:   16127 MB  
node 20 free:   16100 MB  
node 21 cpus:   84  85  86  87  
node 21 size:   16127 MB  
node 21 free:   16099 MB  
node 22 cpus:   88  89  90  91  
node 22 size:   16127 MB  
node 22 free:   16099 MB  
node 23 cpus:   92  93  94  95  
node 23 size:   16126 MB  
node 23 free:   16096 MB  
node 24 cpus:   96  97  98  99  
node 24 size:   16127 MB  
node 24 free:   16087 MB  
node 25 cpus:   100 101 102 103  
node 25 size:   16127 MB  
node 25 free:   16095 MB  
node 26 cpus:   104 105 106 107  
node 26 size:   16127 MB  
node 26 free:   16098 MB  
node 27 cpus:   108 109 110 111  
node 27 size:   16127 MB  
node 27 free:   16092 MB  
node 28 cpus:   112 113 114 115  
node 28 size:   16127 MB  
node 28 free:   16092 MB  
node 29 cpus:   116 117 118 119  
node 29 size:   16127 MB  
node 29 free:   16093 MB  
node 30 cpus:   120 121 122 123  
node 30 size:   16127 MB  
node 30 free:   16094 MB  
node 31 cpus:   124 125 126 127  
node 31 size:   16127 MB  
node 31 free:   16065 MB  
```

(Continued on next page)
## Dell Inc.  
PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)  

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.37</td>
<td>8.64</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test Date:** Dec-2019  
**Hardware Availability:** Feb-2019  
**Software Availability:** Aug-2019  

### Platform Notes (Continued)

<table>
<thead>
<tr>
<th>Platform Notes (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:  11  11  11  10  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>4:  12  12  12  12  10  11  11  11  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>5:  12  12  12  12  11  10  11  11  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>6:  12  12  12  12  11  10  11  11  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>7:  12  12  12  12  11  10  11  11  10  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>8:  12  12  12  12  12  12  12  12  10  11  11  11  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>9:  12  12  12  12  12  12  12  12  11  10  11  11  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>10: 12  12  12  12  12  12  12  12  11  10  11  11  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>11: 12  12  12  12  12  12  12  12  11  10  11  11  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>12: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>13: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>14: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>15: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>16: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>17: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>18: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>19: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>20: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>21: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>22: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>23: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>24: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>25: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
<tr>
<td>26: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  32  32  32  32</td>
</tr>
</tbody>
</table>

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

**Dell Inc.**

**PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)**

**SPECspeed®2017_int_base = 8.37**

**SPECspeed®2017_int_peak = 8.64**

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>Dell Inc.</th>
<th>Test Date</th>
<th>Dec-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor</td>
<td>Dell Inc.</td>
<td>Hardware Availability</td>
<td>Feb-2019</td>
</tr>
<tr>
<td>Tested by</td>
<td>Dell Inc.</td>
<td>Software Availability</td>
<td>Aug-2019</td>
</tr>
</tbody>
</table>

#### Platform Notes (Continued)

```
12 12 12 12 12 11 11 10 11 12 12 12 12
27: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12
12 12 12 12 11 11 11 10 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12 12
28: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12
29: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12
30: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12
12 12 12 12 12 12 12 12 12 12 11 12 11 10 10 10 10 10 10 12 12 12 12 12
31: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12
12 12 12 12 12 12 12 12 12 12 12 12 12 12 11 11 11 11 11 12 12 12 12 12
```

From `/proc/meminfo`

- MemTotal: 527939400 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From `/etc/*release* /etc/*version*`

- `os-release`
  - NAME="SLES"
  - VERSION="15-SP1"
  - VERSION_ID="15.1"
  - PRETTY_NAME="SUSE Linux Enterprise Server 15 SP1"
  - ID="sles"
  - ID_LIKE="suse"
  - ANSI_COLOR="0;32"
  - CPE_NAME="cpe:/o:suse:sles:15:sp1"

- `uname -a`
  - Linux linux-g3ob 4.12.14-195-default #1 SMP Tue May 7 10:55:11 UTC 2019 (8fba516)
  - x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

- 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: __user pointer sanitization
- CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBP: disabled, RSB filling

- run-level 3 Dec 5 04:40
- SPEC is set to: /root/cpu2017-1.1.0

(Continued on next page)
Dell Inc.
PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.
PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)

SPECspeed®2017_int_base = 8.37
SPECspeed®2017_int_peak = 8.64

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

Test Date: Dec-2019
Hardware Availability: Feb-2019
Software Availability: Aug-2019

Platform Notes (Continued)

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 440G 45G 396G 11% /

From /sys/devices/virtual/dmi/id
BIOS: Dell Inc. 1.2.4 11/05/2019
Vendor: Dell Inc.
Product: PowerEdge R6525
Product Family: PowerEdge
Serial: C3JVFX2

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 80AD863280AD HMA84GR7CJR4N-XN 32 GB 2 rank 3200
16x Not Specified Not Specified

(End of data from sysinfo program)

Compiler Version Notes

C
| 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak) 657.xz_s(base, peak)

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

C++
| 623.xalancbmk_s(peak)

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

C++
| 620.omnetpp_s(base, peak) 623.xalancbmk_s(base)
| 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)

(Continued on next page)
## Dell Inc.  
### PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.37</td>
<td>8.64</td>
</tr>
</tbody>
</table>

### CPU2017 License
55

### Test Sponsor
Dell Inc.

### Tested by
Dell Inc.

### Compiler Version Notes (Continued)

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins  
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)  
Target: x86_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

---

### Base Compiler Invocation

**C benchmarks:**

- clang

**C++ benchmarks:**

- clang++

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

**Dell Inc.**

**PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)**

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base = 8.37</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak = 8.64</td>
</tr>
</tbody>
</table>

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

**Test Date:** Dec-2019  
**Hardware Availability:** Feb-2019  
**Software Availability:** Aug-2019

### Base Compiler Invocation (Continued)

Fortran benchmarks:

`flang`

### Base Portability Flags

```bash
600.perlbench_s: -DSPEC_LINUX_X64 -DSPEC_LP64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LINUX -DSPEC_LP64
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:**

- `-flto -Wl,-mllvm -Wl,-function-specialize`
- `-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC`
- `-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math`
- `-march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50`
- `-fremap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist`
- `-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp`
- `-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000`
- `-fvl-function-specialization -z muldefs -DSPEC_OPENMP -fopenmp`
- `-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamlbml`
- `-ljemalloc -lflang`

**C++ benchmarks:**

- `-flto -Wl,-mllvm -Wl,-function-specialize`
- `-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC`
- `-Wl,-mllvm -Wl,-reduce-array-computations=3`
- `-Wl,-mllvm -Wl,-suppress-fmas -O3 -ffast-math -march=znver2`
- `-mllvm -loop-unswitch-threshold=200000 -mllvm -vector-library=LIBMVEC`
- `-mllvm -unroll-threshold=100 -fvl-function-specialization`
- `-mllvm -enable-partial-unswitch -z muldefs -DSPEC_OPENMP -fopenmp`
- `-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamlbml`
- `-ljemalloc -lflang`

*Note: This information is continued on the next page.*
## Dell Inc.

**PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)**

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>8.37</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>8.64</td>
</tr>
</tbody>
</table>

- **CPU2017 License:** 55
- **Test Sponsor:** Dell Inc.
- **Tested by:** Dell Inc.
- **Test Date:** Dec-2019
- **Hardware Availability:** Feb-2019
- **Software Availability:** Aug-2019

### Base Optimization Flags (Continued)

Fortran benchmarks:
- `-flto -Wl,-mlllvm -Wl,-function-specialize`
- `-Wl, -mlllvm -Wl,-region-vectorize -Wl, -mlllvm -Wl,-vector-library=LIBMVEC`
- `-Wl, -mlllvm -Wl,-reduce-array-computations=3 -ffast-math`
- `-Wl, -mlllvm -Wl,-inline-recursion=4 -Wl, -mlllvm -Wl,-lsr-in-nested-loop`
- `-Wl, -mlllvm -Wl,-enable-iv-split -O3 -march=znver2 -funroll-loops`
- `-Mrecursive -mlllvm -vector-library=LIBMVEC -z muldefs`
- `-mlllvm -disable-indvar-simplify -mlllvm -unroll-aggressive`
- `-mlllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -DUSE_OPENMP`
- `-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamlb -ljemalloc -lflang`

C benchmarks:
- `-Wno-return-type`

C++ benchmarks:
- `-Wno-return-type`

Fortran benchmarks:
- `-Wno-return-type`

### Base Other Flags

- C benchmarks:
  - `-Wno-return-type`

- C++ benchmarks:
  - `-Wno-return-type`

- Fortran benchmarks:
  - `-Wno-return-type`

### Peak Compiler Invocation

- C benchmarks:
  - `clang`

- C++ benchmarks:
  - `clang++`

- Fortran benchmarks:
  - `flang`

### Peak Portability Flags

- `600.perlbench_s: -DSPEC_LINUX_X64 -DSPEC_LP64`

---

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

- 602.gcc_s: -DSPEC_LP64
- 605.mcf_s: -DSPEC_LP64
- 620.omnetpp_s: -DSPEC_LP64
- 623.xalancbmk_s: -DSPEC_LINUX -D_FILE_OFFSET_BITS=64
- 625.x264_s: -DSPEC_LP64
- 631.deepsjeng_s: -DSPEC_LP64
- 641.leea_s: -DSPEC_LP64
- 648.exchange2_s: -DSPEC_LP64
- 657.xz_s: -DSPEC_LP64

Peak Optimization Flags

C benchmarks:


(Continued on next page)
Dell Inc.

PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)

**SPEC CPU®2017 Integer Speed Result**

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.37</td>
<td>8.64</td>
</tr>
</tbody>
</table>

CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: Dec-2019
Tested by: Dell Inc.
Hardware Availability: Feb-2019
Software Availability: Aug-2019

---

**Peak Optimization Flags (Continued)**

602.gcc_s (continued):
- -lomp -lpthread -ldl -ljemalloc

605.mcf_s: -flto -Wl,-mllvm -Wl,-function-specialize
- -Wl,-mllvm -Wl,-region-vectorize
- -Wl,-mllvm -Wl,-vector-library=LIBMVEC
- -Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
- -march=znver2 -mno-sse4a -fstruct-layout=5
- -mllvm -vectorize-memory-aggressively
- -mllvm -function-specialize -mllvm -enable-gvn-hoist
- -mllvm -unroll-threshold=50 -fremap-arrays
- -mllvm -vector-library=LIBMVEC
- -mllvm -reduce-array-computations=3
- -mllvm -global-vectorize-slp -mllvm -inline-threshold=1000
- -flv-function-specialization -DSPEC_OPENMP -fopenmp
- -DUSE_OPENMP -lmvec -lamdlibm -fopenmp=libomp -lomp
- -lpthread -ldl -ljemalloc -lflang

625.x264_s: Same as 600.perlbench_s

657.xz_s: -flto -Wl,-mllvm -Wl,-function-specialize
- -Wl,-mllvm -Wl,-region-vectorize
- -Wl,-mllvm -Wl,-vector-library=LIBMVEC
- -Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
- -march=znver2 -mno-sse4a -fstruct-layout=5
- -mllvm -vectorize-memory-aggressively
- -mllvm -function-specialize -mllvm -enable-gvn-hoist
- -mllvm -unroll-threshold=50 -fremap-arrays
- -mllvm -vector-library=LIBMVEC
- -mllvm -reduce-array-computations=3
- -mllvm -global-vectorize-slp -mllvm -inline-threshold=1000
- -flv-function-specialization -DSPEC_OPENMP -fopenmp
- -DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl
- -lmvec -lamdlibm -ljemalloc -lflang

C++ benchmarks:

620.omnetpp_s: -flto -Wl,-mllvm -Wl,-function-specialize
- -Wl,-mllvm -Wl,-region-vectorize
- -Wl,-mllvm -Wl,-vector-library=LIBMVEC
- -Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
- -march=znver2 -flv-function-specialization
- -mllvm -unroll-threshold=100
- -mllvm -enable-partial-unswitch
- -mllvm -loop-unswitch-threshold=200000
- -mllvm -vector-library=LIBMVEC

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

**PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)**

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.37</td>
<td>8.64</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test Date:** Dec-2019  
**Hardware Availability:** Feb-2019  
**Software Availability:** Aug-2019

### Peak Optimization Flags (Continued)

620.omnetpp_s (continued):
-mlvm -inline-threshold=1000 -DSPEC_OPENMP -fopenmp
-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl
-lmvec -lamlibm -ljemalloc -lflang

623.xalancbmk_s: -m32 -flto -Wl,-mlllvm -Wl,-function-specialize
-Wl,-mlllvm -Wl,-region-vectorize
-Wl,-mlllvm -Wl,-vector-library=LIBMVEC
-Wl,-mlllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver2 -flv-function-specialization
-mlvm -unroll-threshold=100
-mlvm -enable-partial-unswitch
-mlvm -loop-unswitch-threshold=200000
-mlvm -vector-library=LIBMVEC
-mlvm -inline-threshold=1000 -DSPEC_OPENMP -fopenmp
-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl
-ljemalloc

631.deepsjeng_s: Same as 620.omnetpp_s

641.leela_s: Same as 620.omnetpp_s

**Fortran benchmarks:**
-ffast-math
-Wl,-mllvm -Wl,-inline-recursion=4
-Wl,-mlllvm -Wl,-lsr-in-nested-loop
-Wl,-mlllvm -Wl,-function-specialize -O3 - marched=znver2 -funroll-loops
-Mrecursive -ml llvm -vector-library=LIBMVEC
-mlllvm -disable-indvar-simplify -mlllvm -unroll-aggressive
-mlllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -DUSE_OPENMP
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamlibm -ljemalloc
-lflang

### Peak Other Flags

**C benchmarks:**
-Wno-return-type

**C++ benchmarks (except as noted below):**
-Wno-return-type

623.xalancbmk_s: -Wno-return-type
-L/sppo/dev/cpu2017/v110/amd_speed_aocc200_rome_C_lib/32

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

**PowerEdge R6525 (AMD EPYC 7H12, 2.60 GHz)**

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>8.37</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>8.64</td>
</tr>
</tbody>
</table>

<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>

#### Peak Other Flags (Continued)

Fortran benchmarks:
- `-Wno-return-type`

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 CPU and SPECspeed 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 v1.1.0 on 2019-12-05 05:44:49-0500.
Originally published on 2019-12-24.