## Dell Inc.

### PowerEdge R7515 (AMD EPYC 75F3 32-Core Processor)

### SPEC CPU®2017 Integer Speed Result

**SPECspeed®2017_int_base** = 13.3  
**SPECspeed®2017_int_peak** = 13.4

<table>
<thead>
<tr>
<th>Threads</th>
<th>0</th>
<th>2.00</th>
<th>4.00</th>
<th>6.00</th>
<th>8.00</th>
<th>10.00</th>
<th>12.00</th>
<th>14.00</th>
<th>16.00</th>
<th>18.00</th>
<th>20.00</th>
<th>22.00</th>
<th>24.00</th>
<th>26.00</th>
<th>28.00</th>
<th>30.00</th>
<th>32.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>1</td>
<td>7.90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>32</td>
<td>14.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>32</td>
<td>14.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>32</td>
<td>8.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>32</td>
<td>15.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>32</td>
<td>18.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>32</td>
<td>6.66</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>32</td>
<td>6.33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>32</td>
<td>25.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Hardware

- **CPU Name:** AMD EPYC 75F3  
- **Max MHz:** 4000  
- **Nominal:** 2950  
- **Enabled:** 32 cores, 1 chip  
- **Orderable:** 1 chip  
- **Cache L1:** 32 KB I + 32 KB D on chip per core  
- **Cache L2:** 512 KB I+D on chip per core  
- **Cache L3:** 256 MB I+D on chip per chip, 32 MB shared / 4 cores  
- **Other:** None  
- **Memory:** 1 TB (8 x 128 GB 4Rx4 PC4-3200AA-R)  
- **Storage:** 125 GB on tmpfs  
- **Other:** None  

### Software

- **OS:** Red Hat Enterprise Linux 8.3 (Ootpa)  
- **Compiler:** C/C++/Fortran: Version 3.0.0 of AOCC  
- **Parallel:** Yes  
- **Firmware:** Version 2.0.3 released Jan-2021  
- **File System:** tmpfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 64-bit  
- **Other:** jemalloc: jemalloc memory allocator library v5.1.0  
- **Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage.
Dell Inc. PowerEdge R7515 (AMD EPYC 75F3 32-Core Processor) SPECspeed®2017_int_base = 13.3
SPECspeed®2017_int_peak = 13.4

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>Base Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>32</td>
<td>224</td>
<td>7.92</td>
<td>225</td>
<td>7.90</td>
<td>1</td>
<td>223</td>
<td>7.98</td>
<td>223</td>
<td>7.96</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>32</td>
<td>279</td>
<td>14.3</td>
<td>279</td>
<td>14.3</td>
<td>1</td>
<td>278</td>
<td>14.3</td>
<td>278</td>
<td>14.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>32</td>
<td>212</td>
<td>22.2</td>
<td>212</td>
<td>22.2</td>
<td>32</td>
<td>212</td>
<td>22.2</td>
<td>212</td>
<td>22.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>32</td>
<td>186</td>
<td>8.77</td>
<td>184</td>
<td>8.86</td>
<td>32</td>
<td>186</td>
<td>8.87</td>
<td>184</td>
<td>8.86</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>32</td>
<td>92.8</td>
<td>15.3</td>
<td>91.7</td>
<td>15.4</td>
<td>32</td>
<td>92.8</td>
<td>15.3</td>
<td>91.7</td>
<td>15.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>32</td>
<td>94.6</td>
<td>18.7</td>
<td>94.8</td>
<td>18.6</td>
<td>1</td>
<td>94.4</td>
<td>18.7</td>
<td>94.7</td>
<td>18.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>32</td>
<td>212</td>
<td>6.77</td>
<td>215</td>
<td>6.66</td>
<td>1</td>
<td>213</td>
<td>6.72</td>
<td>212</td>
<td>6.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>32</td>
<td>269</td>
<td>6.33</td>
<td>269</td>
<td>6.34</td>
<td>1</td>
<td>268</td>
<td>6.37</td>
<td>268</td>
<td>6.36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>32</td>
<td>115</td>
<td>25.5</td>
<td>115</td>
<td>25.6</td>
<td>1</td>
<td>115</td>
<td>25.6</td>
<td>115</td>
<td>25.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>32</td>
<td>233</td>
<td>26.5</td>
<td>232</td>
<td>26.6</td>
<td>32</td>
<td>232</td>
<td>26.6</td>
<td>232</td>
<td>26.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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 limit
'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>

'echo 8 > /proc/sys/vm/dirty_ratio' run as root to limit dirty cache to 8% of memory.
'echo 1 > /proc/sys/vm/swappiness' run as root to limit swap usage to minimum necessary.
'echo 1 > /proc/sys/vm/zone_reclaim_mode' run as root to free node-local memory and avoid remote memory usage.
'sync; echo 3 > /proc/sys/vm/drop_caches' run as root to reset filesystem caches.
'sysctl -w kernel.randomize_va_space=0' run as root to disable address space layout randomization (ASLR) to reduce run-to-run variability.

(Continued on next page)
Dell Inc. PowerEdge R7515 (AMD EPYC 75F3 32-Core Processor)

| SPECspeed®2017_int_base = 13.3 |
| SPECspeed®2017_int_peak = 13.4 |

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

Test Date: Mar-2021
Hardware Availability: Apr-2021
Software Availability: Mar-2021

Operating System Notes (Continued)

To enable Transparent Hugepages (THP) for all allocations, 'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and 'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-31"
LD_LIBRARY_PATH = "/mnt/ramdisk/cpu2017-1.1.5/amd_speed_aocc300_milan_B_lib/64;/mnt/ramdisk/cpu2017-1.1.5/amd_speed_aocc300_milan_B_lib/32:"
MALLOCC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "32"

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 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 = "0-31"

General Notes

Binaries were compiled on a system with 2x AMD EPYC 7742 CPU + 1TiB Memory using openSUSE 15.2

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)
**SPEC CPU®2017 Integer Speed Result**

**Dell Inc.**

PowerEdge R7515 (AMD EPYC 75F3 32-Core Processor)

| SPECspeed®2017_int_base = 13.3 |
| SPECspeed®2017_int_peak = 13.4 |

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

Benchmark run from a 125 GB ramdisk created with the cmd: "mount -t tmpfs -o size=125G tmpfs /mnt/ramdisk"

jemalloc: configured and built with GCC v4.8.2 in RHEL 7.4 (No options specified)

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:**
  - Logical processor: Disabled
  - L3 Cache as NUMA Domain: Enabled
  - Virtualization Technology: Disabled
  - DRAM Refresh Delay: Performance
  - System Profile: Custom
    - CPU Power Management: Maximum Performance
    - Memory Patrol Scrub: Disabled
    - PCI ASPM L1 Link: Disabled
    - Power Management: Disabled

- **Sysinfo program /mnt/ramdisk/cpu2017-1.1.5/bin/sysinfo**
  - Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
  - Running on rhel-8-3-amd Mon Mar 22 10:55:06 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 : AMD EPYC 75F3 32-Core Processor
- 1 "physical id"s (chips)
- 32 "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 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

(Continued on next page)
SPEC CPU®2017 Integer Speed Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R7515 (AMD EPYC 75F3 32-Core Processor)
 SPECspeed®2017_int_base = 13.3
 SPECspeed®2017_int_peak = 13.4

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

Platform Notes (Continued)

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 32
On-line CPU(s) list: 0-31
Thread(s) per core: 1
Core(s) per socket: 32
Socket(s): 1
NUMA node(s): 8
Vendor ID: AuthenticAMD
CPU family: 25
Model: 1
Model name: AMD EPYC 75F3 32-Core Processor
Stepping: 1
CPU MHz: 2138.982
BogoMIPS: 5889.01
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K
L2 cache: 512K
L3 cache: 32768K
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
Flags: fpu vme de pse tsc msr pae mce cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtsscp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid aperfmperf pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm smalgsse 3dnowprefetch osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate sme ssbd mba sev ibrs ibpb stibp vmmcall fsqbse bni avx2 smep bmi2 invpcid cqm rdt_a rdsseed adx smap clflushopt clwb sha ni xsaveopt xsave xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbb_total

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
/proc/cpuinfo cache data
cache size : 512 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a

(Continued on next page)
Platform Notes (Continued)

physical chip.
   available: 8 nodes (0-7)
   node 0 cpus: 0 1 2 3
   node 0 size: 128459 MB
   node 0 free: 126558 MB
   node 1 cpus: 4 5 6 7
   node 1 size: 128979 MB
   node 1 free: 128873 MB
   node 2 cpus: 8 9 10 11
   node 2 size: 129022 MB
   node 2 free: 128901 MB
   node 3 cpus: 12 13 14 15
   node 3 size: 129016 MB
   node 3 free: 128890 MB
   node 4 cpus: 16 17 18 19
   node 4 size: 129020 MB
   node 4 free: 128851 MB
   node 5 cpus: 20 21 22 23
   node 5 size: 129022 MB
   node 5 free: 128906 MB
   node 6 cpus: 24 25 26 27
   node 6 size: 129018 MB
   node 6 free: 128890 MB
   node 7 cpus: 28 29 30 31
   node 7 size: 116909 MB
   node 7 free: 113763 MB

node distances:
   node 0 1 2 3 4 5 6 7
   0: 10 11 11 11 11 11 11 11
   1: 11 11 11 11 11 11 11 11
   2: 11 11 10 11 11 11 11 11
   5: 11 11 11 11 11 11 11 11
   7: 11 11 11 11 11 11 11 11

From /proc/meminfo
MemTotal: 1043935112 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

From /etc/*release* /etc/*version*
   os-release:
## Platform Notes (Continued)

```plaintext
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

```plaintext
uname -a:
Linux rhel-8-3-amd 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):** Mitigation: Speculative Store Bypass disabled via prctl and seccomp
- **CVE-2018-3639 (Speculative Store Bypass):** Mitigation: usercopy/swapgs barriers and __user pointer sanitization
- **CVE-2017-5753 (Spectre variant 1):** Mitigation: Full AMD retpoline, IBBP: conditional, IBRS_FW, STIBP: disabled, RSB filling
- **CVE-2017-5715 (Spectre variant 2):** Not affected
- **CVE-2020-0543 (Special Register Buffer Data Sampling):** Not affected
- **CVE-2019-11135 (TSX Asynchronous Abort):** Not affected

```
run-level 3 Mar 22 10:52
```

SPEC is set to: /mnt/ramdisk/cpu2017-1.1.5

Filesystem | Type | Size | Used | Avail | Use% | Mounted on |
------------|------|------|------|-------|------|------------|
            |      |      |      |       |      |            |
```
tmpfs      | tmpfs | 125G  | 4.6G  | 121G  | 4%   | /mnt/ramdisk
```

From /sys/devices/virtual/dmi/id
Vendor: Dell Inc.
Product: PowerEdge R7515
Product Family: PowerEdge
Serial: 5MGPH13

Additional information from dmidecode follows. WARNING: Use caution when you interpret

(Continued on next page)
Platform Notes (Continued)

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 80CE80B380CE M386AAG40AM3-CWE 128 GB 4 rank 3200
8x Not Specified Not Specified

BIOS:
BIOS Vendor: Dell Inc.
BIOS Version: 2.0.3
BIOS Date: 01/15/2021
BIOS Revision: 2.0

(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) |
|         |                                                                            |
|         |------------------------------------------------------------------------------|
|         | AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on |
|         | LLVM Mirror.Version.12.0.0)                                                |
|         | Target: x86_64-unknown-linux-gnu                                            |
|         | Thread model: posix                                                         |
|         | InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin                             |
|         |------------------------------------------------------------------------------|

(C) Copyright 2017-2021 Standard Performance Evaluation Corporation

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

## Dell Inc.
PowerEdge R7515 (AMD EPYC 75F3 32-Core Processor)

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

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

## Compiler Version Notes (Continued)

- InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

## Base Compiler Invocation

**C benchmarks:**
- clang

**C++ benchmarks:**
- clang++

**Fortran benchmarks:**
- flang

## Base Portability Flags

- **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:**
- `-m64 -mno-adx -mno-sse4a -Wl,-allow-multiple-definition`
- `-Wl,-mllvm -Wl,-enable-lcms-vrp -Wl,-mllvm -Wl,-region-vectorize`
- `-Wl,-mllvm -Wl,-function-specialize`
- `-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
- `-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3`
- `-fveclib=AMDLIBM -ffast-math -f1to -fstruct-layout=5`
- `-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000`
- `-fremap-arrays -mllvm -function-specialize -flv-function-specialization`
- `-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true`
- `-mllvm -enable-lcim-vrp -mllvm -reduce-array-computations=3 -z muldefs`
- `-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc`

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

Dell Inc.  
PowerEdge R7515 (AMD EPYC 75F3 32-Core Processor)  

**SPECspeed®2017_int_base = 13.3**  
**SPECspeed®2017_int_peak = 13.4**

<table>
<thead>
<tr>
<th>CPU2017 License: 55</th>
<th>Test Date: Mar-2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Dell Inc.</td>
<td>Hardware Availability: Apr-2021</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Mar-2021</td>
</tr>
</tbody>
</table>

### Base Optimization Flags (Continued)

C benchmarks (continued):
- `-lflang -lflangrti`

C++ benchmarks:
- `-m64 -std=c++98 -mno-adx -mno-sse4a`
- `-Wl,-mllvm -Wl,-do-block-reorder=aggressive`
- `-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize`
- `-Wl,-mllvm -Wl,-align-all-nofallthrough-blocks=6`
- `-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3`
- `-fveclib=AMDLIBM -ffast-math -fllto -mllvm -enable-partial-unswitch`
- `-mllvm -unroll-threshold=100 -finline-aggressive`
- `-fllv-function-specialization -mllvm -loop-unswitch-threshold=200000`
- `-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch`
- `-mllvm -extra-vectorizer-passes -mllvm -reduce-array-computations=3`
- `-mllvm -global-vectorize-slp=true -mllvm -convert-pow-exp-to-int=false`
- `-z muldefs -mllvm -do-block-reorder=aggressive`
- `-fvirtual-function-elimination -fvisibility=hidden -DSPEC_OPENMP`
- `-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang`
- `-lflangrti`

Fortran benchmarks:
- `-m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-inline-recursion=4`
- `-Wl,-mllvm -Wl,-lsr-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split`
- `-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize`
- `-Wl,-mllvm -Wl,-align-all-nofallthrough-blocks=6`
- `-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3`
- `-fveclib=AMDLIBM -ffast-math -fllto -z muldefs`
- `-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -DSPEC_OPENMP`
- `-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang`
- `-lflangrti`

### Base Other Flags

C benchmarks:
- `-Wno-unused-command-line-argument -Wno-return-type`

C++ benchmarks:
- `-Wno-unused-command-line-argument -Wno-return-type`

Fortran benchmarks:
- `-Wno-return-type`
SPEC CPU®2017 Integer Speed Result

Dell Inc.
PowerEdge R7515 (AMD EPYC 75F3 32-Core Processor)

SPECspeed®2017_int_base = 13.3
SPECspeed®2017_int_peak = 13.4

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

Test Date: Mar-2021
Hardware Availability: Apr-2021
Software Availability: Mar-2021

Peak Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:


602.gcc_s: Same as 600.perlbench_s

605.mcf_s: basepeak = yes

625.x264_s: Same as 600.perlbench_s

657.xz_s: Same as 600.perlbench_s

C++ benchmarks:

(Continued on next page)
Dell Inc.  
PowerEdge R7515 (AMD EPYC 75F3 32-Core Processor)

SPEC CPU®2017 Integer Speed Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.3
SPECspeed®2017_int_peak = 13.4

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

Peak Optimization Flags (Continued)

620.omnetpp_s: basepeak = yes

623.xalancbmk_s: basepeak = yes

631.deepsjeng_s: -m64 -std=c++98 -mno-adx -mno-sse4a
-W1,-mllvm -W1,-do-block-reorder=aggressive
-W1,-mllvm -W1,-function-specialize
-W1,-mllvm -W1,-align-all-nofallthru-blocks=6
-W1,-mllvm -W1,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -flto
-finline-aggressive -mllvm -unroll-threshold=100
-fvl-function-specialization -mllvm -enable-licm-vrp
-mllvm -mreorder-loops -mllvm -aggressive-loop-unswitch
-mllvm -mreorder-array-computations=3
-mllvm -m-global-vectorize-slp=true
-mllvm -mno-block-reorder=aggressive
-fvirtual-function-elimination -mllvm -Wl,-lsr-in-nested-loop
-mllvm -mfunction-specialize
-mllvm -malign-all-nofallthru-blocks=6
-mllvm -mreduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -mllvm -unroll-aggressive
-mllvm -mno-unroll-threshold=150 -fspec-openmp -fopenmp -fopenmp=libomp
-lomp -lamdlibm -ljemmalloc -llflang

Fortran benchmarks:
-m64 -mno-adx -mno-sse4a -W1,-mllvm -W1,-inline-recursion=4
-W1,-mllvm -W1,-lsr-in-nested-loop -W1,-mllvm -W1,-enable-iv-split
-W1,-mllvm -W1,-function-specialize
-W1,-mllvm -W1,-align-all-nofallthru-blocks=6
-W1,-mllvm -W1,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -mllvm -unroll-aggressive
-mllvm -mno-unroll-threshold=150 -fspec-openmp -fopenmp -fopenmp=libomp
-lomp -lamdlibm -ljemmalloc -llflang

Peak Other Flags

C benchmarks:
-Wno-unused-command-line-argument -Wno-return-type

C++ benchmarks:
-Wno-unused-command-line-argument -Wno-return-type

Fortran benchmarks:
-Wno-return-type
Dell Inc.

PowerEdge R7515 (AMD EPYC 75F3 32-Core Processor)

SPECspeed®2017_int_base = 13.3
SPECspeed®2017_int_peak = 13.4

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

Test Date: Mar-2021
Hardware Availability: Apr-2021
Software Availability: Mar-2021

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 v1.1.5 on 2021-03-22 11:55:05-0400.
Report generated on 2021-04-14 14:16:10 by CPU2017 PDF formatter v6442.