### Hardware

<table>
<thead>
<tr>
<th>Spec</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>AMD EPYC 9654P</td>
</tr>
<tr>
<td>MHz</td>
<td>3700</td>
</tr>
<tr>
<td>Mem</td>
<td>768 GB (12 x 64 GB 2Rx4 PC5-4800B-R)</td>
</tr>
<tr>
<td>L1</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>L2</td>
<td>1 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3</td>
<td>384 MB I+D on chip per chip, 32 MB shared / 8 cores</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Spec</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>Ubuntu 22.04.1 LTS</td>
</tr>
<tr>
<td>Comp</td>
<td>C/C++/Fortran: Version 4.0.0 of AOCC</td>
</tr>
<tr>
<td>Par</td>
<td>No</td>
</tr>
<tr>
<td>File</td>
<td>tmpfs</td>
</tr>
<tr>
<td>Sys</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Bp</td>
<td>64-bit</td>
</tr>
<tr>
<td>PP</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>PM</td>
<td>BIOS and OS set to prefer performance at the cost of additional power usage</td>
</tr>
</tbody>
</table>

## SPEC CPU 2017 Floating Point Rate Result

**Dell Inc.**

PowerEdge R6615 (AMD EPYC 96-Core Processor)

**CPU2017 License:** 6573  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  

**Test Date:** Nov-2022  
**Hardware Availability:** Feb-2023  
**Software Availability:** Nov-2022  

**SPECrate®2017_fp_base =** 712  
**SPECrate®2017_fp_peak =** Not Run

### Copies

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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>96</td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>96</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>96</td>
</tr>
<tr>
<td>510.parest_r</td>
<td>96</td>
</tr>
<tr>
<td>511.povray_r</td>
<td>96</td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>96</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>96</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>96</td>
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<tr>
<td>527.cam4_r</td>
<td>96</td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>96</td>
</tr>
<tr>
<td>544.nab_r</td>
<td>96</td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>96</td>
</tr>
<tr>
<td>554.roms_r</td>
<td>96</td>
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</table>

### SPECrate®2017_fp_base (712)
Dell Inc. PowerEdge R6615 (AMD EPYC 9654P 96-Core Processor) SPECrate®2017_fp_base = 712 SPECrate®2017_fp_peak = Not Run

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
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<td>343</td>
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<td>344</td>
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<td></td>
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</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>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty_ratio=8' run as root.
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.
To free node-local memory and avoid remote memory usage, 'sysctl -w vm.zone_reclaim_mode=1' run as root.

(Continued on next page)
Dell Inc. | Dell Inc. | Dell Inc.
---|---|---
**CPU2017 License**: 6573 | **Test Date**: Nov-2022 | **CPU2017 License**: 6573
**Test Sponsor**: Dell Inc. | **Hardware Availability**: Feb-2023 | **Test Sponsor**: Dell Inc.
**Tested by**: Dell Inc. | **Software Availability**: Nov-2022 | **Tested by**: Dell Inc.

### Operating System Notes (Continued)

To clear filesystem caches, 'sync; sysctl -w vm.drop_caches=3' run as root.
To disable address space layout randomization (ASLR) to reduce run-to-run variability, 'sysctl -w kernel.randomize_va_space=0' run as root.

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:

```
LD_LIBRARY_PATH = 
"/mnt/ramdisk/cpu2017-1.1.8-aocc400-B1b/amd_rate_aocc400_genoa_B_lib/lib
:/mnt/ramdisk/cpu2017-1.1.8-aocc400-B1b/amd_rate_aocc400_genoa_B_lib/lib
32:" 
MALLOC_CONF = "retain:true"
```

### General Notes

Binaries were compiled on a system with 2x AMD EPYC 9174F CPU + 1.5TiB Memory using RHEL 8.6

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.

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

### Platform Notes

**BIOS settings:**
- **DRAM Refresh Delay**: Performance
- **DIMM Self Healing on**: Disabled
- **Uncorrectable Memory Error**: Disabled
- **Logical Processor**: Disabled
- **Virtualization Technology**: Disabled
- **L1 Stride Prefetcher**: Disabled
- **NUMA Nodes per Socket**: 4
- **L3 Cache as NUMA Domain**: Enabled

(Continued on next page)
Dell Inc.

PowerEdge R6615 (AMD EPYC 9654P 96-Core Processor)

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

SPECrate®2017_fp_base = 712
SPECrate®2017_fp_peak = Not Run

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Nov-2022
Hardware Availability: Feb-2023
Software Availability: Nov-2022

Platform Notes (Continued)

System Profile: Custom
Memory Patrol Scrub: Disabled
PCI ASPM L1 Link
Power Management: Disabled
Determinism Slider: Power Determinism

Sysinfo program /mnt/ramdisk/cpu2017-1.1.8-aocc400-B1b/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
running on amd-sut Sat Nov 12 18:33:40 2022

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 9654P 96-Core Processor
- 1 "physical id"s (chips)
- 96 "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: 96
- siblings: 96
- physical 0: cores 0 1 2 3 4 5 6 7 16 17 18 19 20 21 22 23 32 33 34 35 36 37 38 39
- 8 49 50 51 52 53 54 55 64 65 66 67 68 69 70 71 80 81 82 83 84 85 86 87 96 97 98 99
- 100 101 102 103 112 113 114 115 116 117 118 119 120 121 128 129 130 131 132 133 134 135 144
- 145 146 147 148 149 150 151 152 153 154 155 156 157 158 160 161 162 163 164 165 166 167 176 177 178 179 180 181
- 182 183

From lscpu from util-linux 2.37.2:
- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Address sizes: 52 bits physical, 57 bits virtual
- Byte Order: Little Endian
- CPU(s): 96
- On-line CPU(s) list: 0-95
- Vendor ID: AuthenticAMD
- Model name: AMD EPYC 9654P 96-Core Processor
- CPU family: 25
- Model: 17
- Thread(s) per core: 1
- Core(s) per socket: 96
- Socket(s): 1
- Stepping: 1
- Frequency boost: enabled
- CPU max MHz: 3709.0000
- CPU min MHz: 400.0000

(Continued on next page)
Dell Inc.

PowerEdge R6615 (AMD EPYC 9654P 96-Core Processor)

SPECrate®2017_fp_base = 712
SPECrate®2017_fp_peak = Not Run

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Test Date: Nov-2022
Tested by: Dell Inc.
Hardware Availability: Feb-2023
Software Availability: Nov-2022

Platform Notes (Continued)

BogoMIPS: 4801.60
Flags: fp vme de pse tsc msr pae mce cx8 apic sep mtrr
pgp mca cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr opt
pdp64bg rdtscp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid
aperfmonperf rlapl pni pclmulqdq monitor ssse3 fma cx16 pcmid sse4_1 sse4_2 x2apic movbe
popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a
misalignsse 3dnowprefetch osw ibs skinit wdt tce topoext perfctr_core perfctr_nb
bpxext perfctr_l1l mwaitx cpb cat_l13 cd1_l3 invpcid_single hw_pstate ssbd mba ibrs
ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2 erts invpcid cqm rdt_a avx512f
avx512dq rdsed adx smap avx512ifma clflushopt clwb avx512cd sha ni avx512bw
avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mmb_total
cqm_mmb_local avx512_bf16 clzero irperf xsaverptr rdrpru wbinvd amd_pini ccpp arat
npt llvm svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassist
pausefilter pfthreshold avic v_vmsave_vmload vg f v_spec_ctrl avx512vbmi umip pku
ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg avx512_vpopcntdq
la57 rdpid overflow_recov succe smca fscr flush_l1d
Virtualization: AMD-V
L1d cache: 3 MiB (96 instances)
L1i cache: 3 MiB (96 instances)
L2 cache: 96 MiB (96 instances)
L3 cache: 384 MiB (12 instances)
NUMA node(s): 12
NUMA node0 CPU(s): 0-7
NUMA node1 CPU(s): 32-39
NUMA node2 CPU(s): 64-71
NUMA node3 CPU(s): 16-23
NUMA node4 CPU(s): 48-55
NUMA node5 CPU(s): 80-87
NUMA node6 CPU(s): 24-31
NUMA node7 CPU(s): 56-63
NUMA node8 CPU(s): 88-95
NUMA node9 CPU(s): 8-15
NUMA node10 CPU(s): 40-47
NUMA node11 CPU(s): 72-79
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Mmio stale data: Not affected
Vulnerability Retbleed: Not affected
Vulnerability Spec store bypass: Mitigation; Spectacular Store Bypass disabled via
prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user
pointer sanitization
Vulnerability Spectre v2: Mitigation; Retpolines, IBPB conditional, IBRS_FW,
STIBP disabled, RSB filling
Vulnerability Srbds: Not affected

(Continued on next page)
Dell Inc.

PowerEdge R6615 (AMD EPYC 9654P 96-Core Processor)

SPEC CPU®2017 Floating Point Rate Result

CPU2017 License: 6573  Test Sponsor: Dell Inc.
Tested by: Dell Inc.

SPECrate®2017_fp_base = 712  Test Date: Nov-2022
SPECrate®2017_fp_peak = Not Run  Hardware Availability: Feb-2023

Software Availability: Nov-2022

Platform Notes (Continued)

Vulnerability Tsx async abort: Not affected

From lscpu --cache:

<table>
<thead>
<tr>
<th>NAME</th>
<th>ONE-SIZE</th>
<th>ALL-SIZE</th>
<th>WAYS</th>
<th>TYPE</th>
<th>LEVEL</th>
<th>SETS</th>
<th>PHY-LINE</th>
<th>COHERENCY-SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1d</td>
<td>32K</td>
<td>3M</td>
<td>8</td>
<td>Data</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
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<tr>
<td>L1i</td>
<td>32K</td>
<td>3M</td>
<td>8</td>
<td>Instruction</td>
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<td>64</td>
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<tr>
<td>L2</td>
<td>1M</td>
<td>96M</td>
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<td>2</td>
<td>2048</td>
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<td>16</td>
<td>Unified</td>
<td>3</td>
<td>32768</td>
<td>1</td>
<td>64</td>
</tr>
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</table>

/proc/cpuinfo cache data

cache size : 1024 KB

From numactl --hardware

WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 12 nodes (0-11)
node 0 cpus: 0 1 2 3 4 5 6 7
node 0 size: 64055 MB
node 0 free: 60031 MB
node 1 cpus: 32 33 34 35 36 37 38 39
node 1 size: 64509 MB
node 1 free: 63988 MB
node 2 cpus: 64 65 66 67 68 69 70 71
node 2 size: 64508 MB
node 2 free: 63989 MB
node 3 cpus: 16 17 18 19 20 21 22 23
node 3 size: 64509 MB
node 3 free: 64008 MB
node 4 cpus: 48 49 50 51 52 53 54 55
node 4 size: 64509 MB
node 4 free: 64008 MB
node 5 cpus: 80 81 82 83 84 85 86 87
node 5 size: 64508 MB
node 5 free: 64022 MB
node 6 cpus: 24 25 26 27 28 29 30 31
node 6 size: 64509 MB
node 6 free: 64003 MB
node 7 cpus: 56 57 58 59 60 61 62 63
node 7 size: 64509 MB
node 7 free: 64031 MB
node 8 cpus: 88 89 90 91 92 93 94 95
node 8 size: 64508 MB
node 8 free: 64033 MB
node 9 cpus: 8 9 10 11 12 13 14 15
node 9 size: 64509 MB
node 9 free: 64023 MB
node 10 cpus: 40 41 42 43 44 45 46 47
node 10 size: 64474 MB

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

#### PowerEdge R6615 (AMD EPYC 9654P 96-Core Processor)

**CPU2017 License:** 6573
**Test Sponsor:** Dell Inc.
**Tested by:** Dell Inc.

---

### Platform Notes (Continued)

- node 10 free: 63984 MB
- node 11 cpus: 72 73 74 75 76 77 78 79
- node 11 size: 64467 MB
- node 11 free: 63984 MB

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<th>3</th>
<th>4</th>
<th>5</th>
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<td>11</td>
<td>10</td>
</tr>
</tbody>
</table>

---

From `/proc/meminfo`
- MemTotal: 792149144 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

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

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

/usr/bin/lsb_release -d
- Ubuntu 22.04.1 LTS

From `/etc/*release*` `/etc/*version*`
- debian_version: bookworm/sid
- os-release:
  - PRETTY_NAME="Ubuntu 22.04.1 LTS"
  - NAME="Ubuntu"
  - VERSION_ID="22.04"
  - VERSION="22.04.1 LTS (Jammy Jellyfish)"
  - VERSION_CODENAME=jammy
  - ID=ubuntu
  - ID_LIKE=debian
  - HOME_URL="https://www.ubuntu.com/"

uname -a:
- Linux amd-sut 5.15.0-46-generic #49-Ubuntu SMP Thu Aug 4 18:03:25 UTC 2022 x86_64

(Continued on next page)
**SPEC CPU®2017 Floating Point Rate Result**  
Copyright 2017-2023 Standard Performance Evaluation Corporation

**Dell Inc.**  
PowerEdge R6615 (AMD EPYC 9654P 96-Core Processor)  

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base</th>
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<tr>
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<td>= Not Run</td>
</tr>
</tbody>
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| CPU2017 License: | 6573 |
| Test Sponsor: | Dell Inc. |
| Tested by: | Dell Inc. |

| Test Date: | Nov-2022 |
| Hardware Availability: | Feb-2023 |
| Software Availability: | Nov-2022 |

### Platform Notes (Continued)

x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

- **CVE-2018-12207 (iTLB Multihit):** Not affected
- **CVE-2018-3620 (L1 Terminal Fault):** Not affected
- **Microarchitectural Data Sampling:** Not affected
- **CVE-2017-5754 (Meltdown):** Not affected
- **mmio_stale_data:** Not affected
- **retbleed:** Not affected
- **CVE-2018-3639 (Speculative Store Bypass):** Mitigation: Speculative Store Bypass disabled via prctl and seccomp
- **CVE-2017-5753 (Spectre variant 1):** Mitigation: usercopy/swapgs barriers and __user pointer sanitization
- **CVE-2017-5715 (Spectre variant 2):** Mitigation: Retpolines, IBPB: conditional, IBRS_FW, STIBP: disabled, RSB filling
- **CVE-2020-0543 (Special Register Buffer Data Sampling):** Not affected
- **CVE-2019-11135 (TSX Asynchronous Abort):** Not affected

run-level 3 Nov 12 17:12

SPEC is set to: /mnt/ramdisk/cpu2017-1.1.8-aocc400-B1b

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>tmpfs</td>
<td>125G</td>
<td>3.4G</td>
<td>122G</td>
<td>3%</td>
<td>/mnt/ramdisk</td>
</tr>
</tbody>
</table>

From /sys/devices/virtual/dmi/id

| Vendor:     | Dell Inc. |
| Product:    | PowerEdge R6615 |
| Product Family: | PowerEdge |
| Serial:     | GLM4018 |

Additional information from dmidecode 3.3 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:

12x 802C0000802C MTC40F2046S1RC48BA1 64 GB 2 rank 4800

BIOS:

| BIOS Vendor: | Dell Inc. |
| BIOS Version: | 0.5.3 |
| BIOS Date:    | 11/10/2022 |
| BIOS Revision: | 0.5 |

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

**PowerEdge R6615 (AMD EPYC 9654P 96-Core Processor)**

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#### Platform Notes (Continued)

(End of data from sysinfo program)

#### Compiler Version Notes

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<tr>
<th>Language</th>
<th>Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td><code>519.lbm_r(base)</code> <code>538.imagick_r(base)</code> <code>544.nab_r(base)</code></td>
</tr>
<tr>
<td></td>
<td>AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)</td>
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<tr>
<td></td>
<td>Target: <code>x86_64-unknown-linux-gnu</code></td>
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<td></td>
<td>Thread model: posix</td>
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<tr>
<td></td>
<td>InstalledDir: <code>/opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin</code></td>
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<tr>
<th>C++</th>
<th><code>508.namd_r(base)</code> <code>510.parest_r(base)</code></th>
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<th><code>511.povray_r(base)</code> <code>526.blender_r(base)</code></th>
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<th>C++, C, Fortran</th>
<th><code>507.cactuBSSN_r(base)</code></th>
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## Dell Inc.

PowerEdge R6615 (AMD EPYC 9654P 96-Core Processor)  

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### Compiler Version Notes (Continued)

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Target: x86_64-unknown-linux-gnu  
Thread model: posix  

### Base Compiler Invocation

C benchmarks:  
clang  

C++ benchmarks:  
clang++

(Continued on next page)
Dell Inc. PowerEdge R6615 (AMD EPYC 9654P 96-Core Processor) SPECrate®2017_fp_base = 712
SPECrate®2017_fp_peak = Not Run

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Nov-2022
Hardware Availability: Feb-2023
Software Availability: Nov-2022

Base Compiler Invocation (Continued)

Fortran benchmarks: flang

Benchmarks using both Fortran and C: flang clang

Benchmarks using both C and C++: clang++ clang

Benchmarks using Fortran, C, and C++: clang++ clang flang

Base Portability Flags

503.bwaves_r: -DSPEC_LP64
507.cactuBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64
510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.ibm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
526.blender_r: -funsigned-char -DSPEC_LP64
527.cam4_r: -DSPEC_CASE_FLAG -DSPEC_LP64
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks: 
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6 
-Wl,-mllvm -Wl,-reduce-array-computations=3 
-Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather -O3 
-march=znver4 -fveclib=AMDLIBM -ffast-math -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3 
-zopt -lamdlibm -lamdalloc -lflang

C++ benchmarks: 
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6 
-Wl,-mllvm -Wl,-reduce-array-computations=3

(Continued on next page)
PowerEdge R6615 (AMD EPYC 9654P 96-Core Processor)

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Test Date: Nov-2022
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Hardware Availability: Feb-2023
Software Availability: Nov-2022

**Base Optimization Flags (Continued)**

C++ benchmarks (continued):
- `-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -O3 -march=znver4`
- `-fveclib=AMDLIBM -ffast-math -mllvm -unroll-threshold=100`
- `-finline-aggressive -mllvm -loop-unswitch-threshold=200000`
- `-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lamdalloc -lflang`

Fortran benchmarks:
- `-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
- `-Wl,-mllvm -Wl,-reduce-array-computations=3`
- `-Wl,-mllvm -Wl,-enable-X86-prefetching -O3 -march=znver4`
- `-fveclib=AMDLIBM -ffast-math -Kieee -Mrecursive -funroll-loops`
- `-mllvm -lsr-in-nested-loop -mllvm -reduce-array-computations=3`
- `-fepilog-vectorization-of-inductions -zopt -lamdlibm -lamdalloc -lflang`

Benchmarks using both Fortran and C:
- `-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
- `-Wl,-mllvm -Wl,-reduce-array-computations=3`
- `-Wl,-mllvm -Wl,-enable-X86-prefetching -O3 -march=znver4`
- `-fveclib=AMDLIBM -ffast-math -fstruct-layout=7`
- `-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000`
- `-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3`
- `-zopt -Kieee -Mrecursive -funroll-loops -mllvm -lslr-in-nested-loop`
- `-fepilog-vectorization-of-inductions -lamdlibm -lamdalloc -lflang`

Benchmarks using both C and C++:
- `-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
- `-Wl,-mllvm -Wl,-reduce-array-computations=3`
- `-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -O3 -march=znver4`
- `-fveclib=AMDLIBM -ffast-math -fstruct-layout=7`
- `-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000`
- `-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3`
- `-zopt -mllvm -unroll-threshold=100 -finline-aggressive`
- `-mllvm -loop-unswitch-threshold=200000 -lamdlibm -lamdalloc -lflang`

Benchmarks using Fortran, C, and C++:
- `-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
- `-Wl,-mllvm -Wl,-reduce-array-computations=3`
- `-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -O3 -march=znver4`
- `-fveclib=AMDLIBM -ffast-math -fstruct-layout=7`
- `-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000`
- `-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3`
- `-zopt -mllvm -unroll-threshold=100 -finline-aggressive`
- `-mllvm -loop-unswitch-threshold=200000 -Kieee -Mrecursive`
- `-funroll-loops -mllvm -lslr-in-nested-loop`

(Continued on next page)
SPEC CPU®2017 Floating Point Rate Result

Dell Inc. PowerEdge R6615 (AMD EPYC 9654P 96-Core Processor)

| SPECrate®2017_fp_base = 712 |
| SPECrate®2017_fp_peak = Not Run |

CPU2017 License: 6573
Test Sponsor: Dell Inc.
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Test Date: Nov-2022
Hardware Availability: Feb-2023
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Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):
-ufepligo-vectorization-of-inductions -lamdlibm -lamdallocl -flang

Base Other Flags

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

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

Fortran benchmarks:
-Wno-unused-command-line-argument

Benchmarks using both Fortran and C:
-Wno-unused-command-line-argument

Benchmarks using both C and C++:
-Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:
-Wno-unused-command-line-argument

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/aocc400-flags.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/aocc400-flags.xml
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-AMD-EPYC-v1.0.xml

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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