Dell Inc.

PowerEdge R6625 (AMD EPYC 9554 64-Core Processor)

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

SPECspeed®2017_fp_base = 410
SPECspeed®2017_fp_peak = Not Run

**CPU2017 License:** 6573  
**Test Date:** Dec-2022

**Test Sponsor:** Dell Inc.  
**Hardware Availability:** Feb-2023

**Tested by:** Dell Inc.  
**Software Availability:** Nov-2022

---

### Threads

<table>
<thead>
<tr>
<th>Test</th>
<th>Threads</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>128</td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>128</td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>128</td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>128</td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>128</td>
</tr>
<tr>
<td>628.pop2_s</td>
<td>128</td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>128</td>
</tr>
<tr>
<td>644.nab_s</td>
<td>128</td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>128</td>
</tr>
<tr>
<td>654.roms_s</td>
<td>128</td>
</tr>
</tbody>
</table>

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### Hardware

**CPU Name:** AMD EPYC 9554  
**Max MHz:** 3750  
**Nominal:** 3100  
**Enabled:** 128 cores, 2 chips  
**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:** 256 MB I + D on chip per chip, 32 MB shared / 8 cores  
**Other:** None  
**Memory:** 1536 GB (24 x 64 GB 2Rx4 PC5-4800B-R)  
**Storage:** 125 GB on tmpfs  
**Other:** None

**Other:** None  
**Memory:** 1536 GB (24 x 64 GB 2Rx4 PC5-4800B-R)  
**Storage:** 125 GB on tmpfs  
**Other:** None

---

### Software

**OS:** Ubuntu 22.04.1 LTS  
**5.15.0-46-generic**  
**Compiler:** C/C++/Fortran: Version 4.0.0 of AOCC  
**Parallel:** Yes  
**Firmware:** Version 1.1.0 released Nov-2022  
**File System:** tmpfs  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** Not Applicable  
**Other:** None  
**Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage.
Dell Inc. PowerEdge R6625 (AMD EPYC 9554 64-Core Processor) Dell Inc.

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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>128</td>
<td>34.3</td>
<td>1720</td>
<td>1720</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>128</td>
<td>26.3</td>
<td>634</td>
<td>26.3</td>
<td>635</td>
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</tr>
<tr>
<td>619.lbm_s</td>
<td>128</td>
<td>19.7</td>
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<td>19.7</td>
<td>266</td>
<td></td>
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</tr>
<tr>
<td>621.wrf_s</td>
<td>128</td>
<td>74.5</td>
<td>178</td>
<td>74.7</td>
<td>177</td>
<td></td>
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<tr>
<td>627.cam4_s</td>
<td>128</td>
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<tr>
<td>628.pop2_s</td>
<td>128</td>
<td>124</td>
<td>95.6</td>
<td>124</td>
<td>95.5</td>
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<td>638.imagick_s</td>
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<tr>
<td>644.nab_s</td>
<td>128</td>
<td>19.2</td>
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<td>649.fotonik3d_s</td>
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<tr>
<td>654.roms_s</td>
<td>128</td>
<td>21.6</td>
<td>728</td>
<td>21.5</td>
<td>734</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></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 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.
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.

(Continued on next page)
Dell Inc.

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SPEC 2017 Floating Point Speed Result

<table>
<thead>
<tr>
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<th>Test Date: Dec-2022</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

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.
To always enable THP for peak runs of:
603.bwaves_s, 607.cactuBSSN_s, 619.lbm_s, 627.cam4_s, 628.pop2_s, 638.imagick_s, 644.nab_s, 649.fotonik3d_s:
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled; echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
To disable THP for peak runs of 621.wrf_s:
'echo never > /sys/kernel/mm/transparent_hugepage/enabled; echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
To enable THP only on request for peak runs of 654.roms_s:
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled; echo madvise > /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 = "0-127"
LD_LIBRARY_PATH = 
"/mnt/ramdisk/cpu2017-1.1.8-aocc400-B1b/amd_speed_aocc400_genoa_B_lib/li
b:" 
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOCONF = "oversize_threshold:0,retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREADLIMIT = "128"

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"
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Platform Notes

BIOS settings:
- DRAM Refresh Delay: Performance
- DIMM Self Healing on
- Uncorrectable Memory Error: Disabled
- Logical Processor: Disabled
- Virtualization Technology: Disabled
- L3 Cache as NUMA Domain: Enabled

- System Profile: Custom
- C-States: Disabled
- Memory Patrol Scrub: Disabled
- PCI ASPM L1 Link
- Power Management: Disabled
- Determinism Slider: Power Determinism
- Algorithm Performance
- Boost Disable (ApbDis): Enabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.8-aocc400-B1b/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e6acaf64d
running on genoa-sut Thu Dec 8 02:08:12 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 9554 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.)
- cpu cores: 64
- siblings: 64
- 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
- 48 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
- physical 1: 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
- 48 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

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): 128

(Continued on next page)
## Platform Notes (Continued)

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-line CPU(s) list:</td>
<td>0–127</td>
</tr>
<tr>
<td>Vendor ID:</td>
<td>AuthenticAMD</td>
</tr>
<tr>
<td>Model name:</td>
<td>AMD EPYC 9554 64-Core Processor</td>
</tr>
<tr>
<td>CPU family:</td>
<td>25</td>
</tr>
<tr>
<td>Model:</td>
<td>17</td>
</tr>
<tr>
<td>Thread(s) per core:</td>
<td>1</td>
</tr>
<tr>
<td>Core(s) per socket:</td>
<td>64</td>
</tr>
<tr>
<td>Socket(s):</td>
<td>2</td>
</tr>
<tr>
<td>Stepping</td>
<td>1</td>
</tr>
<tr>
<td>Frequency boost:</td>
<td>enabled</td>
</tr>
<tr>
<td>CPU max MHz:</td>
<td>3764.0000</td>
</tr>
<tr>
<td>CPU min MHz:</td>
<td>400.0000</td>
</tr>
<tr>
<td>BogoMIPS:</td>
<td>6201.65</td>
</tr>
<tr>
<td>Flags:</td>
<td>fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid aperfmperf rapl 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 sse4a misalignsse 3dnowprefetch osvw ibr skinit wdt tce topoext perfctr_core perfctr_nb bext perfctr_l1c mwaitx cpb cat_l3 cd_p_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsqsb base bml avx2 smep bml2 ems invpcid cmq rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb avx512cd sha ni avx512bw avx512vl xsaveopt xsave xcx save cxsave cmq_llc cmq_occup_llc cmq_mbb_total cmq_mbb_local avx512_bf16 clzero irperf xsaveerptr rdr pr wbnoinvd amd ppin cppc arat npt lbrv svm lock nrp_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter pfthreshold avic v_vmsave_vmlast vgif v_spec_ctrl avx512vbm umip pku ospe avx512_vbmi2 gfn i vaes vpcmulqdq avx512_vnni avx512_bitalg avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush lld</td>
</tr>
<tr>
<td>Virtualization:</td>
<td>AMD-V</td>
</tr>
<tr>
<td>L1d cache:</td>
<td>4 MiB (128 instances)</td>
</tr>
<tr>
<td>L1i cache:</td>
<td>4 MiB (128 instances)</td>
</tr>
<tr>
<td>L2 cache:</td>
<td>128 MiB (128 instances)</td>
</tr>
<tr>
<td>L3 cache:</td>
<td>512 MiB (16 instances)</td>
</tr>
<tr>
<td>NUMA node(s):</td>
<td>16</td>
</tr>
<tr>
<td>NUMA node0 CPU(s):</td>
<td>0–7</td>
</tr>
<tr>
<td>NUMA node1 CPU(s):</td>
<td>32–39</td>
</tr>
<tr>
<td>NUMA node2 CPU(s):</td>
<td>16–23</td>
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<tr>
<td>NUMA node3 CPU(s):</td>
<td>48–55</td>
</tr>
<tr>
<td>NUMA node4 CPU(s):</td>
<td>24–31</td>
</tr>
<tr>
<td>NUMA node5 CPU(s):</td>
<td>56–63</td>
</tr>
<tr>
<td>NUMA node6 CPU(s):</td>
<td>8–15</td>
</tr>
<tr>
<td>NUMA node7 CPU(s):</td>
<td>40–47</td>
</tr>
<tr>
<td>NUMA node8 CPU(s):</td>
<td>64–71</td>
</tr>
<tr>
<td>NUMA node9 CPU(s):</td>
<td>96–103</td>
</tr>
<tr>
<td>NUMA node10 CPU(s):</td>
<td>80–87</td>
</tr>
<tr>
<td>NUMA node11 CPU(s):</td>
<td>112–119</td>
</tr>
<tr>
<td>NUMA node12 CPU(s):</td>
<td>88–95</td>
</tr>
</tbody>
</table>

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Platform Notes (Continued)

NUMA node13 CPU(s): 120-127
NUMA node14 CPU(s): 72-79
NUMA node15 CPU(s): 104-111
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; Speculative 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, STIBF disabled, RSB filling
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected

From lscpu --cache:
NAME ONE-SIZE ALL-SIZE WAYS TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE
L1d 32K 4M 8 Data 1 64 1 64
L1i 32K 4M 8 Instruction 1 64 1 64
L2 1M 128M 8 Unified 2 2048 1 64
L3 32M 512M 16 Unified 3 32768 1 64

/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: 16 nodes (0-15)
node 0 cpus: 0 1 2 3 4 5 6 7
node 0 size: 96312 MB
node 0 free: 95944 MB
node 1 cpus: 32 33 34 35 36 37 38 39
node 1 size: 96765 MB
node 1 free: 95672 MB
node 2 cpus: 16 17 18 19 20 21 22 23
node 2 size: 96765 MB
node 2 free: 92972 MB
node 3 cpus: 48 49 50 51 52 53 54 55
node 3 size: 96765 MB
node 3 free: 96466 MB
node 4 cpus: 24 25 26 27 28 29 30 31
node 4 size: 96765 MB
node 4 free: 96423 MB
node 5 cpus: 56 57 58 59 60 61 62 63

(Continued on next page)
Platform Notes (Continued)

node 5 size: 96745 MB
node 5 free: 96450 MB
node 6 cpus: 8 9 10 11 12 13 14 15
node 6 size: 96730 MB
node 6 free: 96387 MB
node 7 cpus: 40 41 42 43 44 45 46 47
node 7 size: 96765 MB
node 7 free: 96442 MB
node 8 cpus: 64 65 66 67 68 69 70 71
node 8 size: 96765 MB
node 8 free: 96617 MB
node 9 cpus: 96 97 98 99 100 101 102 103
node 9 size: 96765 MB
node 9 free: 96612 MB
node 10 cpus: 80 81 82 83 84 85 86 87
node 10 size: 96765 MB
node 10 free: 96620 MB
node 11 cpus: 112 113 114 115 116 117 118 119
node 11 size: 96765 MB
node 11 free: 96610 MB
node 12 cpus: 88 89 90 91 92 93 94 95
node 12 size: 96765 MB
node 12 free: 96632 MB
node 13 cpus: 120 121 122 123 124 125 126 127
node 13 size: 96765 MB
node 13 free: 96587 MB
node 14 cpus: 72 73 74 75 76 77 78 79
node 14 size: 96765 MB
node 14 free: 96622 MB
node 15 cpus: 104 105 106 107 108 109 110 111
node 15 size: 96765 MB
node 15 free: 96595 MB
node distances:
node 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
0: 10 11 11 11 11 11 11 11 11 32 32 32 32 32 32 32 32 32
8: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32
9: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32
10: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32
11: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32
12: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32

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From /proc/meminfo
MemTotal: 1584860860 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 genoa-sut 5.15.0-46-generic #49-Ubuntu SMP Thu Aug 4 18:03:25 UTC 2022 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/swaps barriers and __user pointer

(Continued on next page)
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**Platform Notes (Continued)**

- **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 Dec 8 00:57**

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

- Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 125G 3.4G 122G 3% /mnt/ramdisk

- From /sys/devices/virtual/dmi/id
  - Vendor: Dell Inc.
  - Product: PowerEdge R6625
  - Product Family: PowerEdge
  - Serial: BGP4016

- 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:
  - 24x 802C0000802C MTC40F2046S1RC48BA1 64 GB 2 rank 4800

- BIOS:
  - BIOS Vendor: Dell Inc.
  - BIOS Version: 1.1.0
  - BIOS Date: 11/25/2022
  - BIOS Revision: 1.1

- (End of data from sysinfo program)

**Compiler Version Notes**

C | 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

(Continued on next page)
## Compiler Version Notes (Continued)

### C++, C, Fortran | 607.cactuBSSN_s(base)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

### Fortran | 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

### Fortran, C | 621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
Dell Inc.

PowerEdge R6625 (AMD EPYC 9554 64-Core Processor)

SPECSpeed®2017_fp_base = 410
SPECSpeed®2017_fp_peak = Not Run

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

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

Base Compiler Invocation

C benchmarks:
clang

Fortran benchmarks:
flang

Benchmarks using both Fortran and C:
flang clang

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

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
627.cam4_s: -DSPEC_CASE_FLAG -DSPEC_LP64
628.pop2_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -fopenmp=libomp -lomp -lamdlibm -lamlalloc
-lflang

Fortran benchmarks:
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -DSPEC_OPENMP -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -Mrecursive
-funroll-loops -mllvm -lsr-in-nested-loop

(Continued on next page)
Dell Inc. PowerEdge R6625 (AMD EPYC 9554 64-Core Processor)

SPECspeed®2017_fp_base = 410
SPECspeed®2017_fp_peak = Not Run

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

### Base Optimization Flags (Continued)

For Fortran benchmarks (continued):
```
-mllvm -reduce-array-computations=3 -zopt -fopenmp=libomp -lomp
-landlibm -landalloc -lflang
```

Benchmarks using both Fortran and C:
```
-m64 -Wl,-mllvm -Wl,-reduce-array-computations=3
-landlibm -Wl,-enable-X86-prefetching -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -fopenmp=libomp -lomp -landlibm -landalloc
-landlibm -landalloc -lflang
```

Benchmarks using Fortran, C, and C++:
```
-m64 -Wl,-mllvm -Wl,-reduce-array-computations=3
-landlibm -Wl,-x86-use-vzeroupper=false -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000 -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -fopenmp=libomp -lomp -landlibm -landalloc
-landlibm -landalloc -lflang
```

### Base Other Flags

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

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

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

Benchmarks using Fortran, C, and C++:
```
-Wno-return-type -Wno-unused-command-line-argument
```
# SPEC CPU®2017 Floating Point Speed Result

## Dell Inc.

PowerEdge R6625 (AMD EPYC 9554 64-Core Processor)

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<td>Software Availability:</td>
<td>Nov-2022</td>
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</table>

The flags files that were used to format this result can be browsed at:


You can also download the XML flags sources by saving the following links:


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

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