Dell Inc.

PowerEdge C6525 (AMD EPYC 7543P 32-Core Processor)

<table>
<thead>
<tr>
<th>SPECspeed\textsuperscript{\textregistered}2017_int_base = 12.4</th>
<th>SPECspeed\textsuperscript{\textregistered}2017_int_peak = 12.5</th>
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<td>CPU2017 License: 55</td>
<td>Test Date: Mar-2021</td>
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<td>Test Sponsor: Dell Inc.</td>
<td>Hardware Availability: Mar-2021</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Mar-2021</td>
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</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>Thread</th>
<th>600.perlbench_s</th>
<th>602.gcc_s</th>
<th>605.mcf_s</th>
<th>620.omnetpp_s</th>
<th>623.xalancbmk_s</th>
<th>625.x264_s</th>
<th>631.deepsjeng_s</th>
<th>641.leela_s</th>
<th>648.exchange2_s</th>
<th>657.xz_s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threads</td>
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<td>17.3</td>
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### Software

<table>
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<tr>
<th>Software</th>
<th>Operating System: Red Hat Enterprise Linux 8.3 (Ootpa) 4.18.0-240.el8.x86_64</th>
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<tr>
<td></td>
<td>Compiler: C/C++/Fortran: Version 3.0.0 of AOCC</td>
</tr>
<tr>
<td></td>
<td>Parallel: Yes</td>
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<tr>
<td></td>
<td>Firmware: Version 2.1.5 released Mar-2021</td>
</tr>
<tr>
<td></td>
<td>File System: xfs</td>
</tr>
<tr>
<td></td>
<td>System State: Run level 5 (graphical multi-user)</td>
</tr>
<tr>
<td></td>
<td>Base Pointers: 64-bit</td>
</tr>
<tr>
<td></td>
<td>Peak Pointers: 64-bit</td>
</tr>
<tr>
<td></td>
<td>Other: jemalloc: jemalloc memory allocator library v5.1.0</td>
</tr>
<tr>
<td></td>
<td>Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.</td>
</tr>
</tbody>
</table>

### CPU Specifications

- **CPU Name:** AMD EPYC 7543P
- **Max MHz:** 3700
- **Nominal:** 2800
- **Enabled:** 32 cores, 1 chip
- **Orderable:** 1 chip
- **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, 32 MB shared / 4 cores
- **Other:** None

### Memory

- **Memory:** 1 TB (8 x 128 GB 4Rx4 PC4-3200AA-L)

### Storage

- **Storage:** 480 GB SATA SSD

### Other

- **Other:** None
spec

SPEC CPU®2017 Integer Speed Result

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Dell Inc.

PowerEdge C6525 (AMD EPYC 7543P 32-Core Processor)

SPECspeed®2017_int_base = 12.4

SPECspeed®2017_int_peak = 12.5

Results Table

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<tr>
<th>Benchmark</th>
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<th>Ratio</th>
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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>

'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)
**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 =
   "/root/Documents/test/cpu2017-1.1.5/amd_speed_aocc300_milan_B_lib/64;/root/Documents/test/cpu2017-1.1.5/amd_speed_aocc300_milan_B_lib/32;"
MALLOC_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 605.mcf_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 623.xalancbmk_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"
SPEC CPU®2017 Integer Speed Result

Dell Inc.

PowerEdge C6525 (AMD EPYC 7543P 32-Core Processor)

| SPECspeed®2017_int_base = 12.4 |
| SPECspeed®2017_int_peak = 12.5 |

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

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.
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 v4.8.2 in RHEL 7.4 (No options specified) 
jemalloc 5.1.0 is available here:
hhttps://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
  - Power Management : Disabled

Sysinfo program /root/Documents/test/cpu2017-1.1.5/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on localhost.localdomain Tue Mar 23 18:40:38 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 7543P 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**

**Dell Inc.**

PowerEdge C6525 (AMD EPYC 7543P 32-Core Processor)

**SPECspeed®2017_int_base = 12.4**

**SPECspeed®2017_int_peak = 12.5**

---

**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 7543P 32-Core Processor
- **Stepping:** 1
- **CPU MHz:** 2439.579
- **CPU max MHz:** 2800.0000
- **CPU min MHz:** 1500.0000
- **BogoMIPS:** 5589.37
- **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
- cx8
- apic
- mxr
- pse36
- clflush
- mmx
- sse
- sse2
- fxsrv
- 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
- misalignsse
- 3dnowprefetch
- osvw
- ibs
- skinit
- wdt
- tce
- topoext
- perfctr_core
- perfctr_nb
- bpext
- perfctr_llc
- mwaitx
- cpb
- cat_l3
- cdpcache
- invpcid_single
- hw_pstate
- sme
- ssbd
- mba
- sev
- ibrs
- ibpb
- vmmcall
- fsgsbase
- bmi1
- avx2
- smep
- bmi2
- invpcid
- cdq
- rdt_a
- rdseed
- adx
- smap
- clflushopt
- clwb
- sha
- ni
- xsaveopt
- xsave
- xgetbv
- xsavec
- cmov
- avx512_core
- avx512
- f16c
- rdtscp
- adx
- svm	
- scale
- vmcb_clean
- flushbyasid
- decodeassists
- pausefilter
- pfthreshold
- v_msr
- save
- vmload
- vgif
- umip
- pku
- ospke
- vaes
- vpcm
- rdpid
- overflow
- recov
- succor
- smca

/proc/cpuinfo

(Continued on next page)
Dell Inc.

PowerEdge C6525 (AMD EPYC 7543P 32-Core Processor)

SPEC CPU®2017 Integer Speed Result

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SPECspeed®2017_int_base = 12.4
SPECspeed®2017_int_peak = 12.5

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

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

Platform Notes (Continued)

- cache size: 512 KB

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

- available: 8 nodes (0-7)
- node 0 cpus: 0 1 2 3
- node 0 size: 128548 MB
- node 0 free: 128324 MB
- node 1 cpus: 4 5 6 7
- node 1 size: 129018 MB
- node 1 free: 125815 MB
- node 2 cpus: 8 9 10 11
- node 2 size: 129020 MB
- node 2 free: 128761 MB
- node 3 cpus: 12 13 14 15
- node 3 size: 129016 MB
- node 3 free: 128595 MB
- node 4 cpus: 16 17 18 19
- node 4 size: 129020 MB
- node 4 free: 128680 MB
- node 5 cpus: 20 21 22 23
- node 5 size: 129018 MB
- node 5 free: 128676 MB
- node 6 cpus: 24 25 26 27
- node 6 size: 129014 MB
- node 6 free: 128733 MB
- node 7 cpus: 28 29 30 31
- node 7 size: 116909 MB
- node 7 free: 116510 MB

node distances:

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<td>10</td>
</tr>
</tbody>
</table>

From /proc/meminfo

- MemTotal: 1044066524 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

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

(Continued on next page)
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PowerEdge C6525 (AMD EPYC 7543P 32-Core Processor)

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

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

Platform Notes (Continued)

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

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

os-release:
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

uname -a:
Linux localhost.localdomain 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/swaps barriers and __user pointer sanitization
CVE-2017-5753 (Spectre variant 1): Mitigation: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBP: disabled, RSB filling
CVE-2017-5715 (Spectre variant 2):
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort):

SPEC is set to: /root/Documents/test/cpu2017-1.1.5

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-root xfs 70G 35G 36G 49% /

From /sys/devices/virtual/dmi/id
Vendor: Dell Inc.

(Continued on next page)
Dell Inc.

Dell Inc.
PowerEdge C6525 (AMD EPYC 7543P 32-Core Processor)

SPECspeed®2017_int_base = 12.4
SPECspeed®2017_int_peak = 12.5

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

Software Availability: Mar-2021

Platform Notes (Continued)

Product: PowerEdge C6525
Product Family: PowerEdge
Serial: 1234567

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:
8x 802C8632802C 72ASS16G72LZ-3G2B3 128 GB 4 rank 3200
8x Not Specified Not Specified

BIOS:
BIOS Vendor: Dell Inc.
BIOS Version: 2.1.5
BIOS Date: 03/05/2021
BIOS Revision: 2.1

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

Fortran | 648.exchange2_s(base, peak)

(Continued on next page)
Dell Inc.
PowerEdge C6525 (AMD EPYC 7543P 32-Core Processor)

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

SPECspeed®2017_int_base = 12.4
SPECspeed®2017_int_peak = 12.5

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

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

Compiler Version Notes (Continued)

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

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 -W1,-allow-multiple-definition
-W1,-mlllvm -W1,-enable-licm-vrp -W1,-mlllvm -W1,-region-vectorize
-W1,-mlllvm -W1,-function-specialize
-W1,-mlllvm -W1,-align-all-nofallthru-blocks=6
-W1,-mlllvm -W1,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5

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

Dell Inc.

PowerEdge C6525 (AMD EPYC 7543P 32-Core Processor) SPECspeed®2017_int_base = 12.4
SPECspeed®2017_int_peak = 12.5

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

Base Optimization Flags (Continued)

C benchmarks (continued):
-mlirm -unroll-threshold=50 -mlirm -inline-threshold=1000
-fremap-arrays -mlirm -function-specialize -flv-function-specialization
-mlirm -enable-gvn-hoist -mlirm -global-vectorize-slp=true
-mlirm -enable-lcin-vrp -mlirm -reduce-array-computations=3 -z muldefs
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-llflang -llflangrti

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

Fortran benchmarks:
-m64 -mnno-adx -mnno-sse4a -Wl,-mlirm -Wl,-inline-recursion=4
-Wl,-mlirm -Wl,-lsr-in-nested-loop -Wl,-mlirm -Wl,-enable-iv-split
-Wl,-mlirm -Wl,-region-vectorize -Wl,-mlirm -Wl,-function-specialize
-Wl,-mlirm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mlirm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -z muldefs
-mlirm -unroll-aggressive -mlirm -unroll-threshold=150 -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-llflang -llflangrti

Base Other Flags

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

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

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

Dell Inc.

PowerEdge C6525 (AMD EPYC 7543P 32-Core Processor)

| SPECspeed®2017_int_base = 12.4 |
| SPECspeed®2017_int_peak = 12.5 |

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

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

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**Base Other Flags (Continued)**

Fortran benchmarks:
-Wno-return-type

---

**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:

600.perlbench_s: -m64 -mno-adx -mno-sse4a -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-licm-vrp
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -flito
-fstruct-layout=5 -mllvm -unroll-threshold=50
-freemap-arrays -flv-function-specialization
-mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist
-mllvm -global-vectorize-slp=true
-mllvm -function-specialize -mllvm -enable-licm-vrp
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

602.gcc_s: Same as 600.perlbench_s

605.mcf_s: Same as 600.perlbench_s

(Continued on next page)
### Peak Optimization Flags (Continued)

625.x264_s: Same as 600.perlbench_s

657.xz_s: basepeak = yes

C++ benchmarks:

620.omnetpp_s: basepeak = yes

623.xalancbmk_s: -m64 -std=c++98 -mno-adx -mno-sse4a
- Wl, -mlllvm -Wl, -do-block-reorder=aggressive
- Wl, -mlllvm -Wl, -function-specialize
- Wl, -mlllvm -Wl, -align-all-nofallthru-blocks=6
- Wl, -mlllvm -Wl, -reduce-array-computations=3 -Ofast
- march=znver3 -fveclib=AMDLIBM -ffast-math -flto
- finline-aggressive -mlllvm -unroll-threshold=100
- flv-function-specialization -mlllvm -enable-llicm-vrp
- mlllvm -reroll-loops -mlllvm -aggressive-loop-unswitch
- mlllvm -reduce-array-computations=3
- mlllvm -global-vectorize-slp=true
- mlllvm -do-block-reorder=aggressive
- fvirtual-function-elimination -fvvisibility=hidden
- DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamlidlibm
- ljemalloc -lflang

631.deepsjeng_s: Same as 623.xalancbmk_s

641.leela_s: Same as 623.xalancbmk_s

Fortran benchmarks:
- m64 -mno-adx -mno-sse4a -Wl, -mlllvm -Wl, -inline-recursion=4
- Wl, -mlllvm -Wl, -function-specialize
- Wl, -mlllvm -Wl, -align-all-nofallthru-blocks=6
- Wl, -mlllvm -Wl, -reduce-array-computations=3 -O3 -march=znver3
- fveclib=AMDLIBM -ffast-math -flto -mlllvm -unroll-aggressive
- mlllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp
- lomp -lamlidlibm -ljemalloc -lflang

### Peak Other Flags

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

(Continued on next page)
Dell Inc.
PowerEdge C6525 (AMD EPYC 7543P 32-Core Processor)

SPEC\textsuperscript{speed}\textsuperscript{2017\_int\_base} = 12.4
SPEC\textsuperscript{speed}\textsuperscript{2017\_int\_peak} = 12.5

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Peak Other Flags (Continued)

\begin{itemize}
  \item C++ benchmarks:
  \texttt{-Wno-unused-command-line-argument -Wno-return-type}
  \item Fortran benchmarks:
  \texttt{-Wno-return-type}
\end{itemize}

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: