# SPEC CPU®2017 Integer Speed Result

## Dell Inc.

PowerEdge R7525 (AMD EPYC 7373X 16-Core Processor)  

### SPECspeed®2017_int_base = 13.4  
### SPECspeed®2017_int_peak = 13.5

<table>
<thead>
<tr>
<th>Test Date</th>
<th>Feb-2022</th>
<th>Hardware Availability</th>
<th>Mar-2022</th>
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<tr>
<td>Test Sponsor</td>
<td>Dell Inc.</td>
<td>Software Availability</td>
<td>Dec-2021</td>
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<tr>
<td>CPU2017 License</td>
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## Hardware

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### SPECspeed®2017_int_base (13.4)  
### SPECspeed®2017_int_peak (13.5)

## Software

### OS:
Red Hat Enterprise Linux 8.3 (Ootpa)  
4.18.0-240.el8.x86_64

### Compiler:
C/C++/Fortran: Version 3.2.0 of AOCC

### Parallel:
Yes

### Firmware:
Version 2.6.5 released Dec-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.

## CPU Name: AMD EPYC 7373X

### Max MHz:
3800

### Nominal:
3050

### Enabled:
32 cores, 2 chips

### Orderable:
1.2 chips

### Cache L1:
32 KB I + 32 KB D on chip per core

### L2:
512 KB I+D on chip per core

### L3:
768 MB I+D on chip per chip, 96 MB shared / 2 cores

### Other:
None

### Memory:
2 TB (16 x 128 GB 4Rx4 PC4-3200AA-L)

### Storage:
125 GB on tmpfs

### Other:
None
### Results Table

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**SPECspeed®2017_int_base = 13.4**  
**SPECspeed®2017_int_peak = 13.5**

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.  
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,
### Operating System Notes (Continued)

'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/cpu2017-1.1.8-aocc320-A1/amd_speed_aocc320_milanx_A_lib/lib32:" 
- LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
- 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 620.omnetpp_s peak run:
- GOMP_CPU_AFFINITY = "0"

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

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"
Dell Inc.

PowerEdge R7525 (AMD EPYC 7373X 16-Core Processor)

**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:
https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2

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

**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
Algorithm Performance
Boost Disable (ApbDis): Enabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.8-aocc320-A1/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acaf64d
running on localhost.localdomain Tue Feb 22 22:01:23 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 7373X 16-Core Processor
  - 2 "physical id"s (chips)
  - 32 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The following

(Continued on next page)
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PowerEdge R7525 (AMD EPYC 7373X 16-Core Processor)

**SPECspeed®2017_int_base = 13.4**

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**Platform Notes (Continued)**

- excerpts from /proc/cpuinfo might not be reliable. Use with caution.
  - cpu cores : 16
  - siblings : 16
  - physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
  - physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

From lscpu from util-linux 2.32.1:
- 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: 16
- Socket(s): 2
- NUMA node(s): 16
- Vendor ID: AuthenticAMD
- CPU family: 25
- Model: 1
- Model name: AMD EPYC 7373X 16-Core Processor
- Stepping: 2
- CPU MHz: 1606.205
- BogoMIPS: 6088.77
- Virtualization: AMD-V
- L1d cache: 32K
- L1i cache: 32K
- L2 cache: 512K
- L3 cache: 98304K
- NUMA node0 CPU(s): 0,1
- NUMA node1 CPU(s): 2,3
- NUMA node2 CPU(s): 4,5
- NUMA node3 CPU(s): 6,7
- NUMA node4 CPU(s): 8,9
- NUMA node5 CPU(s): 10,11
- NUMA node6 CPU(s): 12,13
- NUMA node7 CPU(s): 14,15
- NUMA node8 CPU(s): 16,17
- NUMA node9 CPU(s): 18,19
- NUMA node10 CPU(s): 20,21
- NUMA node11 CPU(s): 22,23
- NUMA node12 CPU(s): 24,25
- NUMA node13 CPU(s): 26,27
- NUMA node14 CPU(s): 28,29
- NUMA node15 CPU(s): 30,31

Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmovpat 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

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**Platform Notes (Continued)**

```bash
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 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 fsgsbase bmi1 avx2 smep bmi2 invpcid cqm rdt_a rdseed adx smap clflushopt clwb sha ni xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local clzero irperf xsaveeprtr wbnoinvd amd_ppin arat lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter pfthreshold v_vmsave_vmload vgif umip pku ospke vaes vpclmulqdq rdpid overflow_recov succor smca
```

/proc/cpuinfo cache data

```
cache size : 512 KB
```

```
From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 16 nodes (0-15)
```

```
node 0 cpus: 0 1
node 0 size: 128075  MB
node 0 free: 128000  MB
node 1 cpus: 2 3
node 1 size: 129021  MB
node 1 free: 128970  MB
node 2 cpus: 4 5
node 2 size: 129021  MB
node 2 free: 128969  MB
node 3 cpus: 6 7
node 3 size: 129023  MB
node 3 free: 128964  MB
node 4 cpus: 8 9
node 4 size: 128983  MB
node 4 free: 128931  MB
node 5 cpus: 10 11
node 5 size: 129021  MB
node 5 free: 128962  MB
node 6 cpus: 12 13
node 6 size: 129019  MB
node 6 free: 128881  MB
node 7 cpus: 14 15
node 7 size: 116907  MB
node 7 free: 116864  MB
node 8 cpus: 16 17
node 8 size: 125483  MB
node 8 free: 125483  MB
node 9 cpus: 18 19
node 9 size: 129017  MB
node 9 free: 128807  MB
node 10 cpus: 20 21
```

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Platform Notes (Continued)

node 10 size: 129021 MB
node 10 free: 128926 MB
node 11 cpus: 22 23
node 11 size: 129015 MB
node 11 free: 128914 MB
node 12 cpus: 24 25
node 12 size: 129021 MB
node 12 free: 128955 MB
node 13 cpus: 26 27
node 13 size: 129015 MB
node 13 free: 128933 MB
node 14 cpus: 28 29
node 14 size: 129015 MB
node 14 free: 128876 MB
node 15 cpus: 30 31
node 15 size: 129018 MB
node 15 free: 128914 MB

node distances:

From /proc/meminfo
MemTotal: 2100496248 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
/sbin/tuned-adm active
Current active profile: throughput-performance

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux"

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Software Availability: Dec-2021

Platform Notes (Continued)

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): 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 sanitation
CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retropoline, IBFB: 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 Feb 22 22:00

SPEC is set to: /mnt/ramdisk/cpu2017-1.1.8-aocc320-A1
Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 125G 3.3G 122G 3% /mnt/ramdisk

From /sys/devices/virtual/dmi/id
Vendor: Dell Inc.
Product: PowerEdge R7525
Product Family: PowerEdge
Serial: GK2D853

Additional information from dmidecode 3.2 follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to

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

Dell Inc.

PowerEdge R7525 (AMD EPYC 7373X 16-Core Processor)

SPECspeed®2017_int_base = 13.4
SPECspeed®2017_int_peak = 13.5

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

Test Date: Feb-2022
Hardware Availability: Mar-2022
Software Availability: Dec-2021

Platform Notes (Continued)

allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.
Memory:
   16x 802C8632802C 72ASS16G72LZ-3G2B3 128 GB 4 rank 3200
   16x Not Specified Not Specified

BIOS:
   BIOS Vendor: Dell Inc.
   BIOS Version: 2.6.5
   BIOS Date: 12/28/2021
   BIOS Revision: 2.6

(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 13.0.0 (CLANG: AOCC_3.2.0-Build#128 2021_11_12) (based on LLVM Mirror.Version.13.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/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 13.0.0 (CLANG: AOCC_3.2.0-Build#128 2021_11_12) (based on LLVM Mirror.Version.13.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin

Fortran
  648.exchange2_s(base, peak)

AMD clang version 13.0.0 (CLANG: AOCC_3.2.0-Build#128 2021_11_12) (based on LLVM Mirror.Version.13.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin

(Continued on next page)
Dell Inc.  
PowerEdge R7525 (AMD EPYC 7373X 16-Core Processor)  

SPECspeed\textsuperscript{©}2017\ int\ base = 13.4  
SPECspeed\textsuperscript{©}2017\ int\ peak = 13.5

CPU2017 License: 55  
Test Date: Feb-2022  

Test Sponsor: Dell Inc.  
Hardware Availability: Mar-2022  

Tested by: Dell Inc.  
Software Availability: Dec-2021  

Compiler Version Notes (Continued)

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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 -Wl,-allow-multiple-definition -Wl,-mllvm -Wl,-enable-licm-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 -fopenmp -flto -fstruct-layout=5  
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000  
-freemap-arrays -mllvm -function-specialize -fiv-function-specialization  
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true  
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3 -z muldefs  
-DSPEC\_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

(Continued on next page)
Base Optimization Flags (Continued)

C++ benchmarks:
- -m64 -Wl,-mlllvm -Wl,-region-vectorize
  -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 -fopenmp -flto
  -mlllvm -enable-partial-unswitch -mlllvm -unroll-threshold=100
  -finline-aggressive -flv-function-specialization
  -mlllvm -loop-unswitch-threshold=200000 -mlllvm -reroll-loops
  -mlllvm -aggressive-loop-unswitch -mlllvm -extra-vectorizer-passes
  -mlllvm -reduce-array-computations=3 -mlllvm -global-vectorize-slp=true
  -mlllvm -convert-pow-exp-to-int=false -z muldefs
  -fvvirtual-function-elimination -fvisibility=hidden -DSPEC_OPENMP
  -fopenmp=libomp -lomp -lamlibm -ljemalloc -lflang

Fortran benchmarks:
- -m64 -Wl,-mlllvm -Wl,-inline-recursion=4
  -Wl,-mlllvm -Wl,-lsr-in-nested-loop -Wl,-mlllvm -Wl,-enable-iv-split
  -Wl,-mlllvm -Wl,-region-vectorize -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 -fopenmp -flto -z muldefs
  -mlllvm -unroll-aggressive -mlllvm -unroll-threshold=150 -DSPEC_OPENMP
  -fopenmp=libomp -lomp -lamlibm -ljemalloc -lflang

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

Peak Compiler Invocation

C benchmarks:
clang

(Continued on next page)
Dell Inc.  
PowerEdge R7525 (AMD EPYC 7373X 16-Core Processor)  

**SPEC CPU®2017 Integer Speed Result**

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| SPECspeed®2017_int_base = 13.4 | SPECspeed®2017_int_peak = 13.5 |

Dell Inc.  
PowerEdge R7525 (AMD EPYC 7373X 16-Core Processor)  

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

**Peak Compiler Invocation (Continued)**

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: Same as 600.perlbench_s


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

**PowerEdge R7525 (AMD EPYC 7373X 16-Core Processor)**

**SPEC CPU®2017 Integer Speed Result**

**Dell Inc.**

PowerEdge R7525 (AMD EPYC 7373X 16-Core Processor)

**SPECspeed®2017_int_base = 13.4**

**SPECspeed®2017_int_peak = 13.5**

**CPU2017 License:** 55

**Test Sponsor:** Dell Inc.

**Test Date:** Feb-2022

**Tested by:** Dell Inc.

**Hardware Availability:** Mar-2022

**Software Availability:** Dec-2021

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**Peak Optimization Flags (Continued)**

625.x264_s (continued):

```c
-mlir -function-specialize -flv-function-specialization
-mlir -enable-gvn-hoist -mlir -global-vectorize-slp=true
-mlir -enable-licm-vrp -mlir -reduce-array-computations=3
-mlir -do-block-reorder=aggressive -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

657.xz_s: basepeak = yes

**C++ benchmarks:**

620.omnetpp_s: -m64 -Wl,-mlir -Wl,-function-specialize

```c
-Wl,-mlir -Wl,-align-all-nofallthru-blocks=6
-Wl,-mlir -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -finline-aggressive -mlir -unroll-threshold=100
-flv-function-specialization -mlir -enable-licm-vrp
-mlir -reroll-loops -mlir -aggressive-loop-unswitch
-mlir -reduce-array-computations=3
-mlir -global-vectorize-slp=true
-fvirtual-function-elimination -fvisibility=hidden
-DSPEC_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-lflang
```

623.xalancbmk_s: -m64 -Wl,-mlir -Wl,-function-specialize

```c
-Wl,-mlir -Wl,-align-all-nofallthru-blocks=6
-Wl,-mlir -Wl,-reduce-array-computations=3
-Wl,-mlir -Wl,-do-block-reorder=aggressive -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -finline-aggressive -mlir -unroll-threshold=100
-flv-function-specialization -mlir -enable-licm-vrp
-mlir -reroll-loops -mlir -aggressive-loop-unswitch
-mlir -reduce-array-computations=3
-mlir -global-vectorize-slp=true
-fvirtual-function-elimination -fvisibility=hidden
-DSPEC_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-lflang
```

631.deepsjeng_s: -m64 -Wl,-mlir -Wl,-do-block-reorder=aggressive

```c
-Wl,-mlir -Wl,-region-vectorize
-Wl,-mlir -Wl,-function-specialize
-Wl,-mlir -Wl,-align-all-nofallthru-blocks=6
-Wl,-mlir -Wl,-reduce-array-computations=3 -O3
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -mlir -enable-partial-unswitch
```

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

**Dell Inc.**

PowerEdge R7525 (AMD EPYC 7373X 16-Core Processor)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
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<tbody>
<tr>
<td>13.4</td>
<td>13.5</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55

**Test Sponsor:** Dell Inc.

**Test Date:** Feb-2022

**Hardware Availability:** Mar-2022

**Tested by:** Dell Inc.

**Software Availability:** Dec-2021

### Peak Optimization Flags (Continued)

631.deepsjeng_s (continued):
- `-mllvm -unroll-threshold=100` `-finline-aggressive`
- `-flv-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`
- `-mllvm -do-block-reorder=aggressive`
- `-fvirtual-function-elimination`
- `-fvisibility=hidden`
- `-DSPEC_OPENMP`
- `-fopenmp=libomp`
- `-lomp`
- `-lamdlibm`
- `-ljemalloc`
- `-lflang`

641.leela_s: Same as 620.omnetpp_s

**Fortran benchmarks:**

648.exchange2_s: `basepeak = yes`

### 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`

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:


Dell Inc.

PowerEdge R7525 (AMD EPYC 7373X 16-Core Processor)  

SPECspeed\textsuperscript{2017} \text{int}_\text{base} = 13.4  

SPECspeed\textsuperscript{2017} \text{int}_\text{peak} = 13.5  

\begin{tabular}{|l|l|}
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CPU2017 License: & 55 \\
Test Sponsor: & Dell Inc. \\
Tested by: & Dell Inc. \\
\hline
\end{tabular}

Test Date: Feb-2022  
Hardware Availability: Mar-2022  
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