# SPEC CPU®2017 Integer Speed Result

## Dell Inc.

### PowerEdge R7525 (AMD EPYC 7413 24-Core Processor)

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

### SPECspeed®2017_int_base = 12.1

### SPECspeed®2017_int_peak = 12.2

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_int_base (12.1)</th>
<th>SPECspeed®2017_int_peak (12.2)</th>
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<tr>
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<td>23.1</td>
</tr>
<tr>
<td>48</td>
<td>5.72</td>
<td>23.1</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** AMD EPYC 7413
- **Max MHz:** 3600
- **Nominal:** 2650
- **Enabled:** 48 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:** 128 MB I+D on chip per chip, 32 MB shared / 6 cores
- **Other:** None
- **Memory:** 2 TB (16 x 128 GB 4Rx4 PC4-3200AA-L)
- **Storage:** 225 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 R7525 (AMD EPYC 7413 24-Core Processor)

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Software Availability: Mar-2021

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
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<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
<th>Peak</th>
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<th>Seconds</th>
<th>Ratio</th>
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</thead>
<tbody>
<tr>
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<td>7.13</td>
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<td>605.mcf_s</td>
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<tr>
<td>620.omnetpp_s</td>
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<td>657.xz_s</td>
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</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
'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.

Source: SPEC SPEC CPU 2017 Integer Speed Test Results for Dell Inc. PowerEdge R7525 (AMD EPYC 7413 24-Core Processor)
SPEC CPU®2017 Integer Speed Result

Dell Inc.

PowerEdge R7525 (AMD EPYC 7413 24-Core Processor)

SPECspeed®2017_int_base = 12.1
SPECspeed®2017_int_peak = 12.2

| CPU2017 License: 55                          | Test Date:    | Mar-2021 |
| Test Sponsor: Dell Inc.                     | Hardware Availability: Apr-2021 |
| Tested by: Dell Inc.                        | 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 = "0-47"
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:"
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "48"

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 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"

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)
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CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: Mar-2021
Tested by: Dell Inc.

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 225 GB ramdisk created with the cmd: "mount -t tmpfs -o size=225G 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
  - Power Management: Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.5/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on localhost.localdomain Fri Mar 12 02:09:44 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 7413 24-Core Processor
  2 "physical id"s (chips)
  48 "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 : 24
  siblings : 24
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian

(Continued on next page)
Dell Inc. PowerEdge R7525 (AMD EPYC 7413 24-Core Processor) Dell Inc.

CPU2017 License: 55  SPECspeed®2017_int_base = 12.1
Test Sponsor:  Dell Inc.  SPECspeed®2017_int_peak = 12.2
Tested by:  Dell Inc.  

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

Platform Notes (Continued)

CPU(s):  48
On-line CPU(s) list:  0-47
Thread(s) per core:  1
Core(s) per socket:  24
Socket(s):  2
NUMA node(s):  8
Vendor ID:  AuthenticAMD
CPU family:  25
Model:  1
Model name:  AMD EPYC 7413 24-Core Processor
Stepping:  1
CPU MHz:  1833.710
BogoMIPS:  5290.59
Virtualization:  AMD-V
L1d cache:  32K
L1i cache:  32K
L2 cache:  512K
L3 cache:  32768K
NUMA node0 CPU(s):  0-5
NUMA node1 CPU(s):  6-11
NUMA node2 CPU(s):  12-17
NUMA node3 CPU(s):  18-23
NUMA node4 CPU(s):  24-29
NUMA node5 CPU(s):  30-35
NUMA node6 CPU(s):  36-41
NUMA node7 CPU(s):  42-47

Flags:  fpu vme de pse tsc msr pae 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 pni pclmulqdq
monitor ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c
rdseed lzcnt zmmask存活状态 cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch
osvw ibs skinit wdt tce topopt perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb
cat_l3 cdp_l3 invpcid_single hw_pstate sme ssbd mba sev ibrs ibpbi stibp vmmcall
fsgsbase bmi1 avx2 smep bmi2 invpcid cqm rdt_a rdseed adx smap clflushopt clwb
sha_ni xsaveopt xsavec xgetbv1 xsavees cqmlc qm_mbb_total
qm_mbb_local clzero irperf xsaveerptr wnboinvd amd_ppin arat npt lbv svm_lock
nrip_save tsc_scale vmcb_clean flushbyasid decodeassist pffreathold v_vmsave_vmload vgif umip pku ospke vaes vpclmulqdq rdrpid overflow_recover succor smca

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 4 5
node 0 size: 257580 MB

/proc/cpuinfo cache data
  cache size: 512 KB

(Continued on next page)
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Platform Notes (Continued)

node 0 free: 255356 MB
node 1 cpus: 6 7 8 9 10 11
node 1 size: 258016 MB
node 1 free: 255033 MB
node 2 cpus: 12 13 14 15 16 17
node 2 size: 258014 MB
node 2 free: 257645 MB
node 3 cpus: 18 19 20 21 22 23
node 3 size: 245915 MB
node 3 free: 245792 MB
node 4 cpus: 24 25 26 27 28 29
node 4 size: 258028 MB
node 4 free: 257951 MB
node 5 cpus: 30 31 32 33 34 35
node 5 size: 258034 MB
node 5 free: 257968 MB
node 6 cpus: 36 37 38 39 40 41
node 6 size: 257976 MB
node 6 free: 257931 MB
node 7 cpus: 42 43 44 45 46 47
node 7 size: 258019 MB
node 7 free: 257956 MB
node distances:
node   0   1   2   3   4   5   6   7
0:  10  11  11  11  32  32  32  32
1:  11  10  11  11  32  32  32  32
2:  11  11  10  11  32  32  32  32
3:  11  11  11  10  32  32  32  32
4:  32  32  32  32  10  11  11  11
5:  32  32  32  32  11  10  11  11
6:  32  32  32  32  11  11  10  11
7:  32  32  32  32  11  11  11  10

From /proc/meminfo
MemTotal:       2101025020 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"
  VERSION="$8.3 (Ootpa)"
  ID="rhel"
  ID_LIKE="fedora"

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Platform Notes (Continued)

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 4.18.0-240.10.1.el8_3.x86_64 #1 SMP Wed Dec 16 03:30:52 EST 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/swappgs barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline, 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 Mar 12 02:04 last=5

SPEC is set to: /mnt/ramdisk/cpu2017-1.1.5
Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 225G 4.7G 221G 3% /mnt/ramdisk

From /sys/devices/virtual/dmi/id
Vendor: Dell Inc.
Product: PowerEdge R7525
Product Family: PowerEdge
Serial: 48LN333

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:

(Continued on next page)
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SPEC\textsuperscript{©}2017\textsuperscript{\textregistered} Integer Speed Result

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Dell Inc.

SPEC\textsuperscript{©}2017\textsuperscript{\textregistered} int_base = 12.1

SPEC\textsuperscript{©}2017\textsuperscript{\textregistered} int_peak = 12.2

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Platform Notes (Continued)

16x 802C8632802C 72ASS16G72LZ-3G2B3 128 GB 4 rank 3200
16x 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

==============================================================================
<table>
<thead>
<tr>
<th></th>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)</td>
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<tr>
<td></td>
<td>Target: x86_64-unknown-linux-gnu</td>
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<tr>
<td></td>
<td>Thread model: posix</td>
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<tr>
<td></td>
<td>InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin</td>
</tr>
</tbody>
</table>
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<tbody>
<tr>
<td>C++</td>
<td>AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)</td>
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<td></td>
<td>Target: x86_64-unknown-linux-gnu</td>
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<tr>
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<td>Thread model: posix</td>
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<tr>
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<td>InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin</td>
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==============================================================================

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<table>
<thead>
<tr>
<th></th>
<th>648.exchange2_s(base, peak)</th>
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<tbody>
<tr>
<td>Fortran</td>
<td>AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)</td>
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<td>Target: x86_64-unknown-linux-gnu</td>
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<tr>
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Dell Inc.

PowerEdge R7525 (AMD EPYC 7413 24-Core Processor)

SPECspeed®2017_int_base = 12.1
SPECspeed®2017_int_peak = 12.2

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

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-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 -flto -fstruct-layout=5
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-freemap-arrays -mllvm -function-specialize -flv-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 -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-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

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

Dell Inc.  
PowerEdge R7525 (AMD EPYC 7413 24-Core Processor)  

<table>
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<td>12.2</td>
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### Base Optimization Flags (Continued)

#### C++ benchmarks (continued):
- `-W1,-mllvm -W1,-align-all-nofallthru-blocks=6`
- `-W1,-mllvm -W1,-reduce-array-computations=3 -O3 -march=znver3`
- `-fveclib=AMDLIBM -ffast-math -flto -mllvm -enable-partial-unswitch`
- `-mllvm -unroll-threshold=100 -finline-aggressive`
- `-fllvm-function-specialization -mllvm -loop-unschotch-threshold=200000`
- `-mllvm -reroll-loops -mllvm -aggressive-loop-unschotch`
- `-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 -W1,-mllvm -W1,-inline-recursion=4`
- `-W1,-mllvm -W1,-lsr-in-nested-loop -W1,-mllvm -W1,-enable-iv-split`
- `-W1,-mllvm -W1,-region-vectorize -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 -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`

### Peak Compiler Invocation

#### C benchmarks:
- `clang`

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### Dell Inc.

**PowerEdge R7525 (AMD EPYC 7413 24-Core Processor)**

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**SPEC CPU®2017 Integer Speed Result**

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<thead>
<tr>
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**CPU2017 License:** 55

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**Test Date:** Mar-2021

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**Software Availability:** Mar-2021

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### Peak Compiler Invocation (Continued)

**C++ benchmarks:**

```
clang++
```

**Fortran benchmarks:**

```
flang
```

---

### Peak Portability Flags

Same as Base Portability Flags

---

### Peak Optimization Flags

**C benchmarks:**

```
600.perlbench_s: basepeak = yes

602.gcc_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 -flto
-fstruct-layout=5 -mllvm -unroll-threshold=50
-fremap-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

605.mcf_s: Same as 602.gcc_s

625.x264_s: Same as 602.gcc_s

657.xz_s: basepeak = yes

620.omnetpp_s: -m64 -std=c++98 -mno-adx -mno-sse4a
-\(Wl,-mllvm -Wl,-do-block-reorder=aggressive\)
-\(Wl,-mllvm -Wl,-function-specialize\)
-\(Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6\)
```

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SPEC CPU®2017 Integer Speed Result

Dell Inc. PowerEdge R7525 (AMD EPYC 7413 24-Core Processor)

Spec CPU®2017_int_base = 12.1
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Peak Optimization Flags (Continued)

620.omnetpp_s (continued):
-mlir -mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -flto
-finline-aggressive -mllvm -unroll-threshold=100
-flv-function-specialization -mllvm -enable-licm-vrp
-mllvm -reroil-loops -mllvm -aggressive-loop-unswitch
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true
-mllvm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm
-ljemalloc -lflang

623.xalancbmk_s: Same as 620.omnetpp_s

631.deepsjeng_s: basepeak = yes

641.leela_s: Same as 620.omnetpp_s

Fortran benchmarks:
-m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-inline-recursion=4
-Wl,-mllvm -Wl,-lslr-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split
-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 -flto -mllvm -unroll-aggressive
-mllvm -unroll-threshold=150 -DSPEC_OPENMP -fopenmp -fopenmp=libomp
-lomp -lamdlibm -ljemalloc -lflang

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
SPEC CPU®2017 Integer Speed Result

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

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