Dell Inc. PowerEdge R7525 (AMD EPYC 72F3 8-Core Processor)

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

**Threads**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed(^{2017\text{_int_base}})</th>
<th>SPECspeed(^{2017\text{_int_peak}})</th>
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</thead>
<tbody>
<tr>
<td>perlbench_s</td>
<td>16</td>
<td>14.2</td>
<td>15.0</td>
</tr>
<tr>
<td>gcc_s</td>
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<td>19.1</td>
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<tr>
<td>mcf_s</td>
<td>1</td>
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<td>6.51</td>
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<tr>
<td>omnetpp_s</td>
<td>16</td>
<td>22.6</td>
<td>27.5</td>
</tr>
<tr>
<td>xalancbmk_s</td>
<td>16</td>
<td>22.7</td>
<td>27.5</td>
</tr>
<tr>
<td>x264_s</td>
<td>16</td>
<td>13.4</td>
<td>26.2</td>
</tr>
<tr>
<td>deepsjeng_s</td>
<td>1</td>
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<tr>
<td>leela_s</td>
<td>16</td>
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<tr>
<td>exchange2_s</td>
<td>1</td>
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<td>26.2</td>
</tr>
<tr>
<td>xz_s</td>
<td>16</td>
<td>19.1</td>
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</tr>
</tbody>
</table>

**SPECspeed\(^{2017\text{\_int_base}}\) = 13.6**  
**SPECspeed\(^{2017\text{\_int_peak}}\) = 13.7**

**Hardware**

- **CPU Name:** AMD EPYC 72F3  
- **Max MHz:** 4100  
- **Nominal:** 3700  
- **Enabled:** 16 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:** 256 MB I+D on chip per chip, 32 MB per core  
- **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 72F3 8-Core Processor)

SPECspeed®2017_int_base = 13.6
SPECspeed®2017_int_peak = 13.7

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>280</td>
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<td>224</td>
<td>27.5</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 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)
Dell Inc.

PowerEdge R7525 (AMD EPYC 72F3 8-Core Processor)

SPECspeed\textsuperscript{\textregistered}2017\textsubscript{int}_\textsubscript{peak} = 13.7
SPECspeed\textsuperscript{\textregistered}2017\textsubscript{int}_\textsubscript{base} = 13.6

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.
Test Date: Mar-2021
Hardware Availability: Jun-2021
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 = "0-15"
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 = "16"

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 631.deepsjeng\_s peak run:
GOMP\_CPU\_AFFINITY = "0"

Environment variables set by runcpu during the 648.exchange2\_s peak run:
GOMP\_CPU\_AFFINITY = "0"

Environment variables set by runcpu during the 657.xz\_s peak run:
GOMP\_CPU\_AFFINITY = "0-15"

General Notes

Binaries were compiled on a system with 2x AMD EPYC 7742 CPU + 1TiB Memory using openSUSE 15.2
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

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

Dell Inc.

PowerEdge R7525 (AMD EPYC 72F3 8-Core Processor)

SPECspeed®2017_int_base = 13.6

SPECspeed®2017_int_peak = 13.7

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

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

General Notes (Continued)

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

Sysinfo program /mnt/ramdisk/cpu2017-1.1.5/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on localhost.localdomain Wed Mar 31 08:51:35 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 72F3 8-Core Processor
        2 "physical id"s (chips)
        16 "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 : 8
    siblings : 8
    physical 0: cores 0 1 2 3 4 5 6 7
    physical 1: cores 0 1 2 3 4 5 6 7

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

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

PowerEdge R7525 (AMD EPYC 72F3 8-Core Processor)  
**SPECspeed®2017_int_base = 13.6**  
**SPECspeed®2017_int_peak = 13.7**

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

**Platform Notes (Continued)**

 Byte Order: Little Endian  
 CPU(s): 16  
 On-line CPU(s) list: 0-15  
 Thread(s) per core: 1  
 Core(s) per socket: 8  
 Socket(s): 2  
 NUMA node(s): 16  
 Vendor ID: AuthenticAMD  
 CPU family: 25  
 Model: 1  
 Model name: AMD EPYC 72F3 8-Core Processor  
 Stepping: 1  
 CPU MHz: 1792.545  
 BogoMIPS: 7386.86  
 Virtualization: AMD-V  
 L1d cache: 32K  
 L1i cache: 32K  
 L2 cache: 512K  
 L3 cache: 32768K  
 NUMA node0 CPU(s): 0  
 NUMA node1 CPU(s): 1  
 NUMA node2 CPU(s): 2  
 NUMA node3 CPU(s): 3  
 NUMA node4 CPU(s): 4  
 NUMA node5 CPU(s): 5  
 NUMA node6 CPU(s): 6  
 NUMA node7 CPU(s): 7  
 NUMA node8 CPU(s): 8  
 NUMA node9 CPU(s): 9  
 NUMA node10 CPU(s): 10  
 NUMA node11 CPU(s): 11  
 NUMA node12 CPU(s): 12  
 NUMA node13 CPU(s): 13  
 NUMA node14 CPU(s): 14  
 NUMA node15 CPU(s): 15  
 Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 ssse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid aperfmpref 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 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 fsqsbse bmi1 avx2 smep bmi2 invpcid cmqm rdt_a rdseed adx smap clflushopt clwb sha ni xsaveopt xsave xsavec xgetbv1 xsavefs qm_llc qm_occup_llc qm_mbm_total qm_mbm_local clzero irperf xsaveerptr wbnoinvd amd_ppin arpt lbrv svm_lock nrip-save tsc_scale vmcb_clean flushbyasid decodeassist pfthresld v_vmsave_vmload vgif umip pku ospke vaes vpclmulqdq rdpid overflow_rekov succor smca

(Continued on next page)
## Dell Inc.

### SPEC CPU®2017 Integer Speed Result

**PowerEdge R7525 (AMD EPYC 72F3 8-Core Processor)**

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.6</td>
<td>13.7</td>
</tr>
</tbody>
</table>

### Platform Notes (Continued)

/proc/cpuinfo cache data

```plaintext
cache size : 512 KB
```

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

```plaintext
available: 16 nodes (0-15)
node 0 cpus: 0
node 0 size: 128587 MB
node 0 free: 123664 MB
node 1 cpus: 1
node 1 size: 129023 MB
node 1 free: 128927 MB
node 2 cpus: 2
node 2 size: 128985 MB
node 2 free: 128725 MB
node 3 cpus: 3
node 3 size: 129023 MB
node 3 free: 128909 MB
node 4 cpus: 4
node 4 size: 129023 MB
node 4 free: 128962 MB
node 5 cpus: 5
node 5 size: 129023 MB
node 5 free: 128915 MB
node 6 cpus: 6
node 6 size: 129023 MB
node 6 free: 128962 MB
node 7 cpus: 7
node 7 size: 116909 MB
node 7 free: 116843 MB
node 8 cpus: 8
node 8 size: 129023 MB
node 8 free: 128965 MB
node 9 cpus: 9
node 9 size: 129023 MB
node 9 free: 128935 MB
node 10 cpus: 10
node 10 size: 129023 MB
node 10 free: 128980 MB
node 11 cpus: 11
node 11 size: 129023 MB
node 11 free: 128961 MB
node 12 cpus: 12
node 12 size: 129023 MB
node 12 free: 128982 MB
node 13 cpus: 13
```

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

Dell Inc.

PowerEdge R7525 (AMD EPYC 72F3 8-Core Processor)

| SPECspeed®2017_int_base = 13.6 |
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**CPU2017 License:** 55  
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**Hardware Availability:** Jun-2021  
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**Software Availability:** Mar-2021

### Platform Notes (Continued)

- node 13 size: 129023 MB
- node 13 free: 128960 MB
- node 14 cpus: 14
- node 14 size: 129023 MB
- node 14 free: 128958 MB
- node 15 cpus: 15
- node 15 size: 129018 MB
- node 15 free: 128967 MB

**Distances:**

```
0: 10 11 11 11 11 11 11 11 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
9: 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
11: 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
13: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32
14: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32
15: 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32 32
```

From `/proc/meminfo`

- MemTotal: 2101023820 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"
    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)
```

(Continued on next page)
Dell Inc.
PowerEdge R7525 (AMD EPYC 72F3 8-Core Processor)

**SPEC CPU®2017 Integer Speed Result**

| SPECspeed®2017_int_base = 13.6 |
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**Platform Notes (Continued)**

```
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/swapgs barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):
    Mitigation: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBF: 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 31 03:49 last=5

SPEC is set to: /mnt/ramdisk/cpu2017-1.1.5
Filesystem     Type   Size  Used Avail Use% Mounted on
    tmpfs    tmpfs  225G  4.8G  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:
    16x 802C8632802C 72ASS16G72LZ-3G2B3 128 GB 4 rank 3200
    16x Not Specified Not Specified

BIOS:
    BIOS Vendor: Dell Inc.
    BIOS Version: 2.0.3
```

(Continued on next page)
Dell Inc.

PowerEdge R7525 (AMD EPYC 72F3 8-Core Processor)

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</tbody>
</table>

**Platform Notes (Continued)**

BIOS Date: 01/15/2021
BIOS Revision: 2.0

(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) |

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

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Dell Inc.
PowerEdge R7525 (AMD EPYC 72F3 8-Core Processor)

SPEC®2017 Integer Speed Result
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Dell Inc.

PowerEdge R7525 (AMD EPYC 72F3 8-Core Processor)

SPECspeed®2017_int_base = 13.6
SPECspeed®2017_int_peak = 13.7

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

Base Compiler Invocation (Continued)

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-lcm-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
-fremap-arrays -mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-lcm-vrp -mllvm -reduce-array-computations=3 -z mulfns
-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
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -mllvm -enable-partial-unswitch

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

C++ benchmarks (continued):
-mlir -unroll-threshold=100 -finline-aggressive
-flv-function-specialization -mlir -loop-unswitch-threshold=200000
-mlir -reroll-loops -mlir -aggressive-loop-unswitch
-mlir -extra-vectorizer-passes -mlir -reduce-array-computations=3
-mlir -global-vectorize-slp=true -mlir -convert-pow-exp-to-int=false
-z mulfdes -mlir -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -ljemalloc
-lflangrti

Fortran benchmarks:
-m64 -mno-adx -mno-sse4a -Wl,-mlir -Wl,-inline-recursion=4
-Wl,-mlir -Wl,-lsr-in-nested-loop -Wl,-mlir -Wl,-enable-iv-split
-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 -flto -z mulfdes
-mlir -unroll-aggressive -mlir -unroll-threshold=150 -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -ljemalloc
-lflangrti

Base Other Flags

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

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

Fortran benchmarks:
-Wo-return-type

Peak Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++
Dell Inc.  
PowerEdge R7525 (AMD EPYC 72F3 8-Core Processor)  
SPECspeed®2017_int_base = 13.6  
SPECspeed®2017_int_peak = 13.7

Peak Compiler Invocation (Continued)

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  
-W1,-mllvm -Wl,-enable-licm-vrp  
-W1,-mllvm -Wl,-function-specialize  
-W1,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-W1,-mllvm -Wl,-reduce-array-computations=3 -Ofast  
-march=znver3 -fveclib=AMDLIBM -ffast-math -flto  
-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  
605.mcf_s: Same as 602.gcc_s  
625.x264_s: basepeak = yes  
657.xz_s: Same as 602.gcc_s

C++ benchmarks:

620.omnetpp_s: basepeak = yes
623.xalancbmk_s: -m64 -std=++98 -mno-adx -mno-sse4a  
-W1,-mllvm -Wl,-do-block-reorder=aggressive  
-W1,-mllvm -Wl,-function-specialize  
-W1,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-W1,-mllvm -Wl,-reduce-array-computations=3 -Ofast  

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

623.xalancbmk_s (continued):
-`-march=znver3 -fveclib=AMDLIBM -ffast-math -flto`
-`-finline-aggressive -mllvm -unroll-threshold=100`
-`-flv-function-specialization -mllvm -enable-licmr-vrp`
-`-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch`
-`-mllvm -reduce-array-computations=3`
-`-mllvm -global-vectorize-slp=true`
-`-mllvm -do-block-reorder=aggressive`
-`-fvirtual-function-elimination -fvvisibility=hidden`
-`-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm`
-`-ljemalloc -lflang`

631.deepsjeng_s: Same as 623.xalancbmk_s

641.leela_s: basepeak = yes

Fortran benchmarks:
-`-m64 -mno-adx -mno-sse4a -W1,-mllvm -W1,-inline-recursion=4`
-`-W1,-mllvm -W1,-lser-in-nested-loop -W1,-mllvm -W1,-enable-iv-split`
-`-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 -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

**Dell Inc.**

**PowerEdge R7525 (AMD EPYC 72F3 8-Core Processor)**

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_peak</th>
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</tbody>
</table>

**CPU2017 License:** 55

**Test Sponsor:** Dell Inc.

**Tested by:** Dell Inc.

**Test Date:** Mar-2021

**Hardware Availability:** Jun-2021

**Software Availability:** Mar-2021

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


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