## SPEC CPU®2017 Integer Speed Result

### Dell Inc.

PowerEdge C6525 (AMD EPYC 7713P 64-Core Processor)

**SPECspeed®2017_int_base = 12.2**

**SPECspeed®2017_int_peak = 12.3**

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

<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>
<td>64</td>
<td>64</td>
<td>64</td>
<td>64</td>
<td>64</td>
<td>64</td>
<td>64</td>
<td>64</td>
<td>64</td>
<td>64</td>
</tr>
<tr>
<td>1</td>
<td>7.22</td>
<td>7.23</td>
<td>13.2</td>
<td>20.4</td>
<td>20.6</td>
<td>17.1</td>
<td>6.23</td>
<td>5.78</td>
<td>23.4</td>
<td>23.9</td>
</tr>
</tbody>
</table>

### Hardware

**CPU Name:** AMD EPYC 7713P  
**Max MHz:** 3675  
**Nominal:** 2000  
**Enabled:** 64 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 / 8 cores  
**Other:** None  
**Memory:** 1 TB (8 x 128 GB 4Rx4 PC4-3200AA-L)  
**Storage:** 480 GB SATA SSD  
**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 2.1.5 released Mar-2021  
**File System:** xfs  
**System State:** Run level 5 (graphical 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 C6525 (AMD EPYC 7713P 64-Core Processor)

<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>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>64</td>
<td>245</td>
<td>7.23</td>
<td>246</td>
<td>7.22</td>
<td>244</td>
<td>7.28</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>64</td>
<td>302</td>
<td>13.2</td>
<td>301</td>
<td>13.2</td>
<td>299</td>
<td>13.3</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>64</td>
<td>230</td>
<td>20.6</td>
<td>232</td>
<td>20.4</td>
<td>229</td>
<td>20.6</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>64</td>
<td>205</td>
<td>7.95</td>
<td>203</td>
<td>8.03</td>
<td>201</td>
<td>8.11</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>64</td>
<td>100</td>
<td>14.1</td>
<td>99.5</td>
<td>14.2</td>
<td>100</td>
<td>14.1</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>64</td>
<td>103</td>
<td>17.1</td>
<td>103</td>
<td>17.1</td>
<td>103</td>
<td>17.1</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>64</td>
<td>230</td>
<td>6.23</td>
<td>228</td>
<td>6.29</td>
<td>229</td>
<td>6.26</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>64</td>
<td>295</td>
<td>5.79</td>
<td>295</td>
<td>5.78</td>
<td>294</td>
<td>5.80</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>64</td>
<td>126</td>
<td>23.4</td>
<td>126</td>
<td>23.4</td>
<td>125</td>
<td>23.6</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>64</td>
<td>258</td>
<td>24.0</td>
<td>257</td>
<td>24.0</td>
<td>259</td>
<td>23.9</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>

'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.
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Dell Inc.
PowerEdge C6525 (AMD EPYC 7713P 64-Core Processor)

SPECspeed®2017_int_base = 12.2
SPECspeed®2017_int_peak = 12.3

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 = "0-63"
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:"
MALLOCONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "64"

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"

Environment variables set by runcpu during the 648.exchange2_s peak run:
GOMP_CPU_AFFINITY = "0"

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

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**Dell Inc.**

PowerEdge C6525 (AMD EPYC 7713P 64-Core Processor)  

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**Environment Variables Notes (Continued)**

Environment variables set by runcpu during the 657.xz_s peak run:

GOMP_CPU_AFFINITY = "0-63"

**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

**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: Disabled
- 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 18:44:40 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 7713P 64-Core Processor

  1 "physical id"s (chips)

  64 "processors"
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Hardware Availability: Mar-2021
Software Availability: Mar-2021

Platform Notes (Continued)

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 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
53 54 55 56 57 58 59 60 61 62 63

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 64
On-line CPU(s) list: 0-63
Thread(s) per core: 1
Core(s) per socket: 64
Socket(s): 1
NUMA node(s): 8
Vendor ID: AuthenticAMD
CPU family: 25
Model: 1
Model name: AMD EPYC 7713P 64-Core Processor
Stepping: 1
CPU MHz: 1795.799
CPU max MHz: 2000.000
CPU min MHz: 1500.000
BogoMIPS: 3992.66
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K
L2 cache: 512K
L3 cache: 32768K
NUMA node0 CPU(s): 0-7
NUMA node1 CPU(s): 8-15
NUMA node2 CPU(s): 16-23
NUMA node3 CPU(s): 24-31
NUMA node4 CPU(s): 32-39
NUMA node5 CPU(s): 40-47
NUMA node6 CPU(s): 48-55
NUMA node7 CPU(s): 56-63
Flags: 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 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 ssse4 misalignsse 3dnowprefetch
osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_l1c mwwaitx cpb
cat_l3 cdp_l3 invpcid_single hw_pstate sme ssbd mba sev ibrs ibpb stibp vmmcall

(Continued on next page)
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</table>

**Platform Notes (Continued)**

fsqgsbase bm1 avx2 smep bmi2 invpcid rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb sha_ni xsaveopt xsave xsavec xsave vcpu clflushopt clwb

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 6 7
data
node 0 size: 128587 MB
data
node 0 free: 128264 MB
data
node 1 cpus: 8 9 10 11 12 13 14 15
data
node 1 size: 128978 MB
data
node 1 free: 128746 MB
data
node 2 cpus: 16 17 18 19 20 21 22 23
data
node 2 size: 129021 MB
data
node 2 free: 128536 MB
data
node 3 cpus: 24 25 26 27 28 29 30 31
data
node 3 size: 129019 MB
data
node 3 free: 128541 MB
data
node 4 cpus: 32 33 34 35 36 37 38 39
data
node 4 size: 129021 MB
data
node 4 free: 125596 MB
data
node 5 cpus: 40 41 42 43 44 45 46 47
data
node 5 size: 129021 MB
data
node 5 free: 128715 MB
data
node 6 cpus: 48 49 50 51 52 53 54 55
data
node 6 size: 129021 MB
data
node 6 free: 128785 MB
data
node 7 cpus: 56 57 58 59 60 61 62 63
data
node 7 size: 116908 MB
data
node 7 free: 116424 MB
data
node distances:
data
node 0 1 2 3 4 5 6 7
data
0: 10 11 11 11 11 11 11 11
data
1: 11 10 11 11 11 11 11 11
data
2: 11 11 10 11 11 11 11 11
data
3: 11 11 11 10 11 11 11 11
data
4: 11 11 11 11 10 11 11 11
data
5: 11 11 11 11 11 10 11 11
data
6: 11 11 11 11 11 11 10 11
data
7: 11 11 11 11 11 11 11 10

(Continued on next page)
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Platform Notes (Continued)

From /proc/meminfo
MemTotal: 1044059604 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

/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): 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/swapsqgs barriers and __user pointer sanitation
CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline, 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

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Platform Notes (Continued)

run-level 5 Mar 24 02:26

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   19G   52G  27% /

From /sys/devices/virtual/dmi/id
Vendor:         Dell Inc.
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
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Compiler Version Notes (Continued)

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

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Base Optimization Flags

C benchmarks:
- m64 -mno-adx -mno-sse4a -Wl,-allow-multiple-definition
- Wl,-mllvm -Wl,-enable-lcvm-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 -fto -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-lcvm-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
- Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
- Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
- fveclib=AMDLIBM -ffast-math -fto -mllvm -enable-partial-unswitch
- 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
- 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 -Wl,-mllvm -Wl,-inline-recursion=4
- Wl,-mllvm -Wl,-lsr-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split
- 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 -fto -z muldefs
- mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -DSPEC_OPENMP
- fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
- -lflangrti
SPEC CPU®2017 Integer Speed Result

Dell Inc.
PowerEdge C6525 (AMD EPYC 7713P 64-Core Processor)  

SPECspeed®2017_int_base = 12.2
SPECspeed®2017_int_peak = 12.3

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

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
C++ benchmarks:
clang++

Fortran benchmarks:
flang

Peak Portability Flags
Same as Base Portability Flags

Peak Optimization Flags
C benchmarks:
-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

(Continued on next page)
Dell Inc.

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SPECspeed®2017_int_base = 12.2
SPECspeed®2017_int_peak = 12.3

Peak Optimization Flags (Continued)

C++ benchmarks:
- m64 -std=c++98 -mno-adx -mno-sse4a
- W1,-mlllvm -W1,-do-block-reorder-aggressive
- W1,-mlllvm -W1,-function-specialize
- W1,-mlllvm -W1,-align-all-nofallthru-blocks=6
- W1,-mlllvm -W1,-reduce-array-computations=3 -Ofast -march=znver3
- fveclib=AMDLIBM -ffast-math -flto -finline-aggressive
- mlllvm -unroll-threshold=100 -flv-function-specialization
- mlllvm -enable-licm-vrp -mlllvm -reroll-loops
- mlllvm -aggressive-loop-unswitch -mlllvm -reduce-array-computations=3
- mlllvm -global-vectorize-slp=true -mlllvm -do-block-reorder-aggressive
- fvvirtual-function-elimination -fvisibility=hidden -DSPEC/OpenMP
- fopenmp -fopenmp=libomp -lomp -ldmlibm -ljemalloc -lflang

Fortran benchmarks:
- m64 -mno-adx -mno-sse4a -W1,-mlllvm -W1,-inline-recursion=4
- W1,-mlllvm -W1,-lsr-in-nested-loop -W1,-mlllvm -W1,-enable-iv-split
- 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 -mlllvm -unroll-aggressive
- mlllvm -unroll-threshold=150 -DSPEC/OpenMP -fopenmp -fopenmp=libomp
- lomp -ldmlibm -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

You can also download the XML flags sources by saving the following links:
## SPEC CPU®2017 Integer Speed Result

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<th>Dell Inc.</th>
<th>SPECspeed®2017_int_base = 12.2</th>
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<td>PowerEdge C6525 (AMD EPYC 7713P 64-Core Processor)</td>
<td>SPECspeed®2017_int_peak = 12.3</td>
</tr>
</tbody>
</table>

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