



SPEC® CPU2017 Integer Speed Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen10

(3.10 GHz, AMD EPYC 7371)

SPECspeed2017_int_base = 8.15

SPECspeed2017_int_peak = 8.36

CPU2017 License: 3

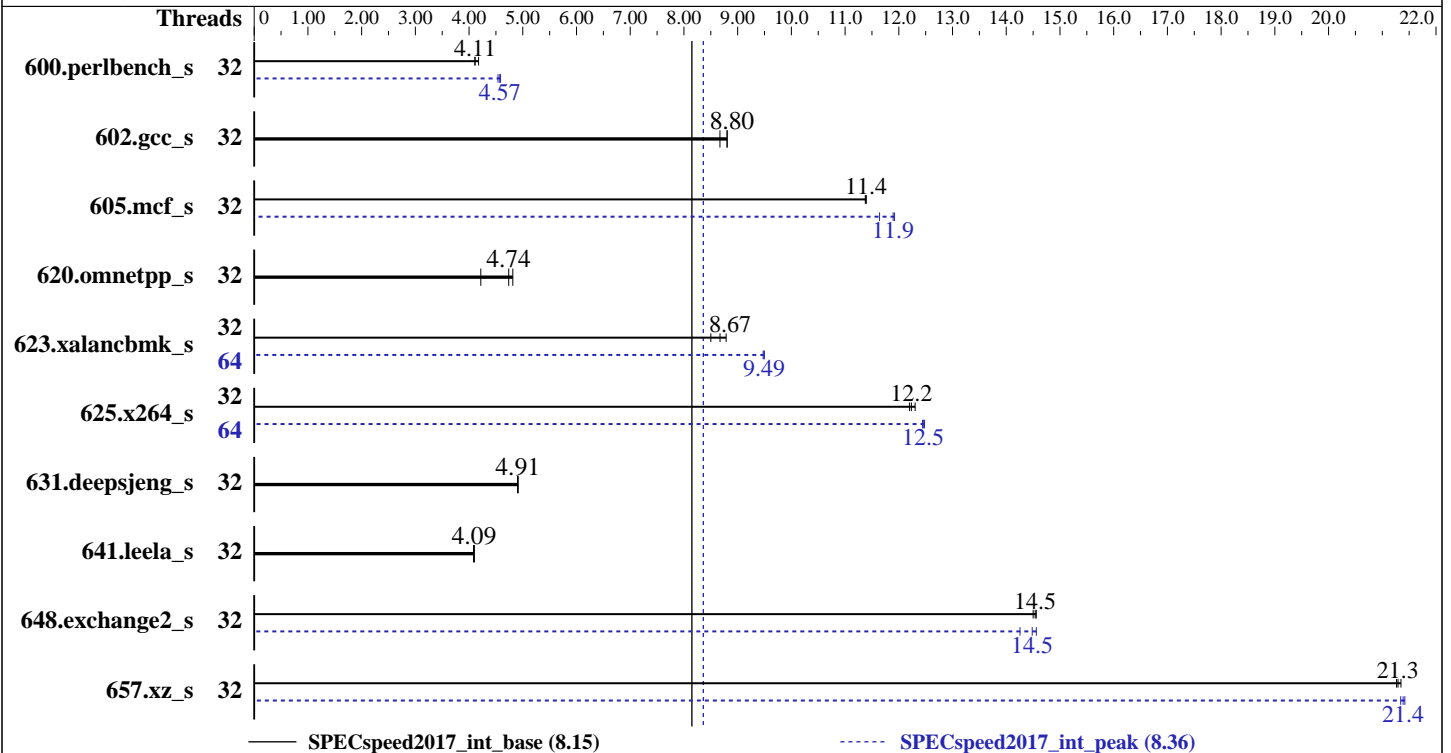
Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2019

Hardware Availability: Feb-2019

Software Availability: Jul-2018



Hardware

CPU Name: AMD EPYC 7371
 Max MHz.: 3800
 Nominal: 3100
 Enabled: 32 cores, 2 chips, 2 threads/core
 Orderable: 1, 2 chip(s)
 Cache L1: 64 KB I + 32 KB D on chip per core
 L2: 512 KB I+D on chip per core
 L3: 64 MB I+D on chip per chip, 8 MB shared / 2 cores
 Other: None
 Memory: 1 TB (16 x 64 GB 4Rx4 PC4-2666V-L)
 Storage: 1 x 400 GB SAS SSD RAID 0
 Other: None

Software

OS: SUSE linux Enterprise Server 12 (x86_64) SP3
 Kernel 4.4.132-94.33-default
 Compiler: C/C++: Version 1.2.1 of AOCC
 Fortran: Version 4.8.2 of GCC
 Parallel: Yes
 Firmware: HPE BIOS Version A40 10/02/2018 released Oct-2018
 File System: btrfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other: jemalloc memory allocator library V4.5.0



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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	32	432	4.11	425	4.18	432	4.11	32	387	4.59	388	4.57	391	4.54
602.gcc_s	32	459	8.67	452	8.80	452	8.80	32	459	8.67	452	8.80	452	8.80
605.mcf_s	32	415	11.4	414	11.4	414	11.4	32	406	11.6	397	11.9	396	11.9
620.omnetpp_s	32	387	4.22	339	4.81	344	4.74	32	387	4.22	339	4.81	344	4.74
623.xalancbmk_s	32	163	8.67	161	8.79	167	8.50	64	150	9.47	149	9.50	149	9.49
625.x264_s	32	143	12.3	144	12.2	145	12.2	64	141	12.5	142	12.4	142	12.5
631.deepsjeng_s	32	292	4.91	292	4.90	292	4.91	32	292	4.91	292	4.90	292	4.91
641.leela_s	32	416	4.10	418	4.08	417	4.09	32	416	4.10	418	4.08	417	4.09
648.exchange2_s	32	203	14.5	202	14.5	202	14.6	32	206	14.3	202	14.6	203	14.5
657.xz_s	32	290	21.3	291	21.3	290	21.3	32	289	21.4	290	21.3	289	21.4

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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/>

The AOCC Gold Linker plugin was installed and used for the link stage.

The AOCC Fortran Plugin version 1.2 was used to leverage AOCC optimizers with gfortran. It is available here:
<http://developer.amd.com/amd-aocc/>

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

runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

BIOS Configuration

Set dirty_ratio=8 to limit dirty cache to 8% of memory

Set swappiness=1 to swap only if necessary

Set zone_reclaim_mode=1 to free local node memory and avoid remote memory

sync then drop_caches=3 to reset caches before invoking runcpu

Thermal Configuration set to Maximum Cooling

dirty_ratio, swappiness, zone_reclaim_mode and drop_caches were all set using privileged echo (e.g. echo 1 > /proc/sys/vm/swappiness).

Performance Determinism set to Power Deterministic

Workload Power and Utilization Monitoring set to Disabled

(Continued on next page)



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Operating System Notes (Continued)

Minimum Processor Idle Power core C-State set to C6 State

General Notes

Environment variables set by runcpu before the start of the run:

GOMP_CPU_AFFINITY = "0-63"

LD_LIBRARY_PATH = "/cpu2017/amd1806-speed-libs-revA/64:/cpu2017/amd1806-speed-libs-revA/32:"

OMP_PROC_BIND = "true"

OMP_STACKSIZE = "192M"

OMP_WAIT_POLICY = "active"

Binaries were compiled on a system with 2x AMD EPYC 7601 CPU + 512GB Memory using RHEL 7.4

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 v7.2 under default conditions.

jemalloc: sources available from jemalloc.net or

<https://github.com/jemalloc/jemalloc/releases>

jemalloc uses environment variable MALLOC_CONF

with values narenas and lg_chunk:

narenas: sets the maximum number of arenas to use for automatic multiplexing of threads and arenas.

lg_chunk: set the virtual memory chunk size (log base 2). For example,

lg_chunk:21 sets the default chunk size to $2^{21} = 2\text{MiB}$.

Platform Notes

BIOS Configuration:

Thermal Configuration set to Maximum Cooling

Performance Determinism set to Power Deterministic

Memory Patrol Scrubbing set to Disabled

Workload Profile set to General Throughput Compute

Processor Power and Utilization Monitoring set to Disabled

Sysinfo program /cpu2017/bin/sysinfo

Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9

running on linux-lgdj Sun Dec 31 20:30:24 2000

SUT (System Under Test) info as seen by some common utilities.

For more information on this section, see

(Continued on next page)



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Platform Notes (Continued)

<https://www.spec.org/cpu2017/Docs/config.html#sysinfo>

From /proc/cpuinfo

model name : AMD EPYC 7371 16-Core Processor

2 "physical id"s (chips)

64 "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 : 16

siblings : 32

physical 0: cores 0 1 4 5 8 9 12 13 16 17 20 21 24 25 28 29

physical 1: cores 0 1 4 5 8 9 12 13 16 17 20 21 24 25 28 29

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: 2

Core(s) per socket: 16

Socket(s): 2

NUMA node(s): 8

Vendor ID: AuthenticAMD

CPU family: 23

Model: 1

Model name: AMD EPYC 7371 16-Core Processor

Stepping: 2

CPU MHz: 3100.000

CPU max MHz: 3100.0000

CPU min MHz: 2500.0000

BogoMIPS: 6188.26

Virtualization: AMD-V

L1d cache: 32K

L1i cache: 64K

L2 cache: 512K

L3 cache: 8192K

NUMA node0 CPU(s): 0-3,32-35

NUMA node1 CPU(s): 4-7,36-39

NUMA node2 CPU(s): 8-11,40-43

NUMA node3 CPU(s): 12-15,44-47

NUMA node4 CPU(s): 16-19,48-51

NUMA node5 CPU(s): 20-23,52-55

NUMA node6 CPU(s): 24-27,56-59

NUMA node7 CPU(s): 28-31,60-63

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

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Platform Notes (Continued)

```

constant_tsc rep_good nopl nonstop_tsc extd_apicid amd_dcm aperfmperf eagerfpu pni
pclmulqdq monitor ssse3 fma cx16 sse4_1 sse4_2 movbe popcnt aes xsave avx fl6c
rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch
osvw skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_l2 mwaitx arat cpb
hw_pstate ssbd retpoline retpoline_amd npt lbrv svm_lock nrip_save tsc_scale
vmcb_clean flushbyasid decodeassists pausefilter pfthreshold vmmcall avic fsgsbase
bmi1 avx2 smep bmi2 rdseed adx smap clflushopt sha_ni xsaveopt xsavec xgetbv1 clzero
irperf ibpb 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: 8 nodes (0-7)
node 0 cpus: 0 1 2 3 32 33 34 35
node 0 size: 128840 MB
node 0 free: 128670 MB
node 1 cpus: 4 5 6 7 36 37 38 39
node 1 size: 129022 MB
node 1 free: 128815 MB
node 2 cpus: 8 9 10 11 40 41 42 43
node 2 size: 129022 MB
node 2 free: 128830 MB
node 3 cpus: 12 13 14 15 44 45 46 47
node 3 size: 129022 MB
node 3 free: 128849 MB
node 4 cpus: 16 17 18 19 48 49 50 51
node 4 size: 129022 MB
node 4 free: 128924 MB
node 5 cpus: 20 21 22 23 52 53 54 55
node 5 size: 129022 MB
node 5 free: 128918 MB
node 6 cpus: 24 25 26 27 56 57 58 59
node 6 size: 129022 MB
node 6 free: 128923 MB
node 7 cpus: 28 29 30 31 60 61 62 63
node 7 size: 116925 MB
node 7 free: 116825 MB
node distances:
node  0  1  2  3  4  5  6  7
 0:  10 16 16 16 32 32 32 32
 1:  16 10 16 16 32 32 32 32
 2:  16 16 10 16 32 32 32 32
 3:  16 16 16 10 32 32 32 32
 4:  32 32 32 32 10 16 16 16
 5:  32 32 32 32 16 10 16 16

```

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Platform Notes (Continued)

```
6: 32 32 32 32 16 16 10 16
7: 32 32 32 32 16 16 16 10
```

From /proc/meminfo

```
MemTotal:      1044375828 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

/usr/bin/lsb_release -d

```
SUSE Linux Enterprise Server 12 SP3
```

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

SuSE-release:

```
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 3
```

```
# This file is deprecated and will be removed in a future service pack or release.
# Please check /etc/os-release for details about this release.
```

os-release:

```
NAME="SLES"
VERSION="12-SP3"
VERSION_ID="12.3"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp3"
```

uname -a:

```
Linux linux-1gdj 4.4.132-94.33-default #1 SMP Tue May 29 20:09:56 UTC 2018 (76aae3b)
x86_64 x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

```
CVE-2017-5754 (Meltdown):          Not affected
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline + IBPB
```

run-level 3 Dec 31 18:01

SPEC is set to: /cpu2017

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3        btrfs    371G   13G  357G   4% /
```

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.

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Platform Notes (Continued)

BIOS HPE A40 10/02/2018

Memory:

16x UNKNOWN NOT AVAILABLE

16x UNKNOWN NOT AVAILABLE 64 GB 4 rank 2666

(End of data from sysinfo program)

Compiler Version Notes

=====
CXXC 623.xalancbmk_s(peak)

AOCC.LLVM.1.2.1.B29.2018_05_14 clang version 6.0.0 (CLANG:
b6b3d31d6df08fb7da935a28842b39b7b3c2c55b) (llvm/cpu/llvm
18855c80ed252fc4ba4ac41e2086627ef2bddd04) (based on LLVM
AOCC.LLVM.1.2.1.B29.2018_05_14)

Target: i386-unknown-linux-gnu

Thread model: posix

InstalledDir: /root/work/compilers/aoccl.2.1/AOCC-1.2.1-Compiler/bin

=====
CC 600.perlbench_s(base) 602.gcc_s(base, peak) 605.mcf_s(base, peak)
625.x264_s(base) 657.xz_s(base, peak)

AOCC.LLVM.1.2.1.B29.2018_05_14 clang version 6.0.0 (CLANG:
b6b3d31d6df08fb7da935a28842b39b7b3c2c55b) (llvm/cpu/llvm
18855c80ed252fc4ba4ac41e2086627ef2bddd04) (based on LLVM
AOCC.LLVM.1.2.1.B29.2018_05_14)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /root/work/compilers/aoccl.2.1/AOCC-1.2.1-Compiler/bin

=====
CXXC 620.omnetpp_s(base, peak) 623.xalancbmk_s(base) 631.deepsjeng_s(base,
peak) 641.leela_s(base)

AOCC.LLVM.1.2.1.B29.2018_05_14 clang version 6.0.0 (CLANG:
b6b3d31d6df08fb7da935a28842b39b7b3c2c55b) (llvm/cpu/llvm
18855c80ed252fc4ba4ac41e2086627ef2bddd04) (based on LLVM
AOCC.LLVM.1.2.1.B29.2018_05_14)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /root/work/compilers/aoccl.2.1/AOCC-1.2.1-Compiler/bin

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Compiler Version Notes (Continued)

=====
CC 600.perlbench_s(peak) 625.x264_s(peak)
=====

AOCC.LLVM.1.2.1.B29.2018_05_14 clang version 6.0.0 (CLANG:
b6b3d31d6df08fb7da935a28842b39b7b3c2c55b) (llvm/cpu/llvm
18855c80ed252fc4ba4ac41e2086627ef2bddd04) (based on LLVM
AOCC.LLVM.1.2.1.B29.2018_05_14)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /root/work/compilers/aoccl.2.1/AOCC-1.2.1-Compiler/bin
=====

=====
CXXC 641.leela_s(peak)
=====

AOCC.LLVM.1.2.1.B29.2018_05_14 clang version 6.0.0 (CLANG:
b6b3d31d6df08fb7da935a28842b39b7b3c2c55b) (llvm/cpu/llvm
18855c80ed252fc4ba4ac41e2086627ef2bddd04) (based on LLVM
AOCC.LLVM.1.2.1.B29.2018_05_14)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /root/work/compilers/aoccl.2.1/AOCC-1.2.1-Compiler/bin
=====

=====
FC 648.exchange2_s(base, peak)
=====

GNU Fortran (GCC) 4.8.2

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under the terms of the GNU General Public License.

For more information about these matters, see the file named COPYING
=====

Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

clang gfortran



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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:

```
-flto -fuse-ld=lld -Wl,-mllvm -Wl,-function-specialize -O3
-ffast-math -march=znver1 -fstruct-layout=3
-mllvm -unroll-threshold=50 -fremap-arrays -mno-avx2
-mllvm -inline-threshold=1000 -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -function-specialize -z muldefs
-lamdlibm -DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -ljemalloc
```

C++ benchmarks:

```
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -flto -fuse-ld=lld
-Wl,-mllvm -Wl,-function-specialize -O3 -march=znver1 -ffast-math
-mllvm -unroll-threshold=100 -flv-function-specialization
-mllvm -enable-partial-unswitch -fremap-arrays
-mllvm -inline-threshold=1000 -z muldefs -lamdlibm -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -ljemalloc
```

Fortran benchmarks:

```
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -Wl,-mllvm -Wl,-merge-constant
-Wl,-mllvm -Wl,-unroll-aggressive -Wl,-mllvm -Wl,-unroll-threshold=150
-flto -fuse-ld=lld -Wl,-mllvm -Wl,-function-specialize -O3
-funroll-loops -ffast-math -z muldefs -lamdlibm -fplugin=dragonegg.so
-specs=integrated-as.specs
-fplugin-arg-dragonegg-llvm-option=-disable-indvar-simplify
-fplugin-arg-dragonegg-llvm-option=-unroll-aggressive
-fplugin-arg-dragonegg-llvm-option=-unroll-threshold:150 -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -ljemalloc -lgfortran
```



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Base Other Flags

C benchmarks:

-Wno-return-type -DUSE_OPENMP

C++ benchmarks:

-Wno-return-type -DUSE_OPENMP

Fortran benchmarks:

-DUSE_OPENMP -Wno-return-type

Peak Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

clang gfortran

Peak 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 -D_FILE_OFFSET_BITS=64
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

Peak Optimization Flags

C benchmarks:

600.perlbench_s: -flto -fuse-ld=lld -Wl,-mllvm -Wl,-function-specialize
-fprofile-instr-generate(pass 1)
-fprofile-instr-use(pass 2) -Ofast -march=znver1

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Peak Optimization Flags (Continued)

600.perlbench_s (continued):

```
-mno-sse4a -fstruct-layout=5
-mllvm -vectorize-memory-aggressively -mno-avx2
-mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist
-flv-function-specialization
-mllvm -enable-vectorize-compares -z muldefs -lamdlibm
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -ljemalloc
```

602.gcc_s: basepeak = yes

605.mcf_s: -flto -fuse-ld=lld -Wl,-mllvm -Wl,-function-specialize

```
-Ofast -march=znver1 -mno-sse4a -fstruct-layout=5
-mllvm -vectorize-memory-aggressively -mno-avx2
-mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist
-flv-function-specialization
-mllvm -enable-vectorize-compares -z muldefs -lamdlibm
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -ljemalloc
```

625.x264_s: Same as 600.perlbench_s

657.xz_s: Same as 605.mcf_s

C++ benchmarks:

620.omnetpp_s: basepeak = yes

```
623.xalancbmk_s: -m32 -fuse-ld=lld -Wl,-mllvm -Wl,-x86-use-vzeroupper=false
-flto -Wl,-mllvm -Wl,-function-specialize -Ofast
-march=znver1 -flv-function-specialization
-mllvm -unroll-threshold=100 -fremap-arrays
-mllvm -inline-threshold=1000 -z muldefs -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -libs-revA/32 -ljemalloc
```

631.deepsjeng_s: basepeak = yes

641.leela_s: basepeak = yes

Fortran benchmarks:

```
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -Wl,-mllvm -Wl,-merge-constant
-Wl,-mllvm -Wl,-unroll-aggressive -Wl,-mllvm -Wl,-unroll-threshold=150
-flto -fuse-ld=lld -Wl,-mllvm -Wl,-function-specialize -O3
-funroll-loops -ffast-math -z muldefs -lamdlibm -fplugin=dragonegg.so
-specs=integrated-as.specs
```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen10

(3.10 GHz, AMD EPYC 7371)

SPECspeed2017_int_base = 8.15

SPECspeed2017_int_peak = 8.36

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2019

Hardware Availability: Feb-2019

Software Availability: Jul-2018

Peak Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-fplugin-arg-dragonegg-llvm-option=-disable-indvar-simplify
-fplugin-arg-dragonegg-llvm-option=-unroll-aggressive
-fplugin-arg-dragonegg-llvm-option=-unroll-threshold:150 -DSPEC_OPENMP
-fopenmp -fopenmp=libomp -lomp -ljemalloc -lgfortran
```

Peak Other Flags

C benchmarks:

```
-Wno-return-type -DUSE_OPENMP
```

C++ benchmarks (except as noted below):

```
-Wno-return-type -DUSE_OPENMP
```

623.xalancbmk_s: -Wno-return-type -DUSE_OPENMP

```
-L/root/work/cpu2017/v105/amd1806-speed
```

Fortran benchmarks:

```
-DUSE_OPENMP -Wno-return-type
```

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/aocc100-flags-revC-I.2018-11-13.html>

<http://www.spec.org/cpu2017/flags/gcc.2017-11-20.html>

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-AMD-V1.2-EPYC-revD.html>

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

<http://www.spec.org/cpu2017/flags/aocc100-flags-revC-I.2018-11-13.xml>

<http://www.spec.org/cpu2017/flags/gcc.2017-11-20.xml>

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-AMD-V1.2-EPYC-revD.xml>

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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