



SPEC CPU®2017 Integer Rate Results

Copyright 2017-2023 Standard Performance Evaluation Corporation

Supermicro

A+ Server 2124US-TNRP
(H12DSU-iN , AMD EPYC 7313)

SPECrate®2017_int_base =

SPECrate®2017_int_peak =

CPU2017 License: 001176

Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Jan-2023

Hardware Availability: Aug-2019

Software Availability: Jan-2023

SPEC has determined that this result does not comply with the SPEC CPU 2017 run and reporting rules. Specifically, the submitter notified SPEC that the system as configured violates rule 2.3.1 (a) due to the use of an unsafe compiler option.

Copies

500.perlbench_r

502.gcc_r

505.mcf_r

520.omnetpp_r

523.xalancbmk_r

525.x264_r

531.deepsjeng_r

541.leela_r

548.exchange2_r

557.xz_r

Hardware

CPU Name: AMD EPYC 7313

Nominal: 3000

Enabled: 32 cores, 2 chips, 2 threads/core

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 / 4 cores

Other: None

Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R)

Storage: 1 x 200 GB SATA III SSD

Other: None

Software

OS:

Ubuntu 22.04.1 LTS

Kernel 5.15.0-58-generic

Compiler:

C/C++/Fortran: Version 3.0.0 of AOCC

Parallel:

No

Firmware:

Version 2.5 released Sep-2022

File System:

ext4

System State:

Run level 5 (multi-user)

Base Pointers:

64-bit

Peak Pointers:

32/64-bit

Other:

jemalloc: jemalloc memory allocator library v5.1.0

Power Management:

BIOS and OS set to max performance at the cost of additional power usage.



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Results Table

Benchmark	Base							Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	
500.perlbench_r	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
502.gcc_r	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
505.mcf_r	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
520.omnetpp_r	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
523.xalancbmk_r	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
525.x264_r	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
531.deepsjeng_r	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
541.leela_r	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
548.exchange2_r	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
557.xz_r	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

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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/>

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>

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Operating System Notes (Continued)

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) only on request for base runs,
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled' run as root.
To enable THP for all allocations for peak runs,
'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:
LD_LIBRARY_PATH =
"/home/cpu2017/and_rate_aocc300_milan_B_lib/lib:/home/cpu2017/and_rate_aocc300_milan_B_lib/lib32:"
MALLOC_CONF = "retain:true"

Environment variables set by runcpu during the 523.xalancbmk_r peak run:
MALLOC_CONF = "thp:never"

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)

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General Notes (Continued)

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:

Determinism Control = Manual

Determinism Slider = Power

cTDP Control = Manual

cTDP = 180

Package Power Limit Control = Manual

Package Power Limit = 180

APBDIS = 1

NUMA Nodes Per Socket = N/A

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6622 of 2022-04-09 832a61ec0915b55891ef0e16acafc64d

running on h12dsu-13 Thu Jan 19 09:11:00 2023

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

modelname : AMD EPYC 7313 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 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 2.37.2:

Architecture: x86_64

CPU op-mode(s): 32-bit, 64-bit

Address sizes: 48 bits physical, 48 bits virtual

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Platform Notes (Continued)

```

Byte Order:                Little Endian
CPU(s):                    64
On-line CPU(s) list:      0-63
Vendor ID:                 AuthenticAMD
Model name:                AMD EPYC 7313 16-Core Processor
CPU family:                25
Model:                     1
Thread(s) per core:       2
Core(s) per socket:       16
Socket(s):                 2
Stepping:                  1
Frequency boost:          enabled
CPU max MHz:               3729.4919
CPU min MHz:               1500.0000
BogoMIPS:                  6000.17
Flags:                     fpu vme de pse tsc msr pae mce cx8 apic sep mtrr
pge mca cmov sep 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
aperfmpperf rdtscp pni plmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 movbe popcnt
aes xsave avx 56c 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_alle mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs
ibpb rdtscp vmmcall fsgsbase bmi1 avx2 smep bmi2 erms invpcid cqm rdt_a rdseed adx
smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc
cqm_mbm_local cqm_mbm_local clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin arat
npt lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists
pause_16b pfthreshold v_vmsave_vmload vgif v_spec_ctrl umip pku ospke vaes
vpclmulqdq rdpid overflow_recov succor smca frsm
Virtualization:           AMD-V
L1d cache:                1 MiB (32 instances)
L1i cache:                1 MiB (32 instances)
L2 cache:                 16 MiB (32 instances)
L3 cache:                 256 MiB (8 instances)
NUMA node(s):             8
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

```

(Continued on next page)



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Platform Notes (Continued)

```

NUMA node6 CPU(s):          24-27,31-35
NUMA node7 CPU(s):          28-31,60-63
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:         Not affected
Vulnerability Mds:          Not affected
Vulnerability Meltdown:     Not affected
Vulnerability Mmio stale data: Not affected
Vulnerability Retbleed:     Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1:    Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2:    Mitigation; Retpolines, IBPB conditional, IBRS_FW, STIBP always-on, RSB filling, PBRSSB-eIBRS Not affected
Vulnerability Srbds:         Not affected
Vulnerability Tsx async abort: Not affected

```

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	32K	1M	8	Data	1	64	1	64
L1i	32K	1M	8	Instruction	1	64	1	64
L2	512K	16M	8	Unified	2	1024	1	64
L3	32M	256M	16	Unified	3	32768	1	64

/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: 128822 MB
node 0 free: 128391 MB
node 1 cpus: 4 5 6 7 36 37 38 39
node 1 size: 129021 MB
node 1 free: 128449 MB
node 2 cpus: 8 9 10 11 40 41 42 43
node 2 size: 129021 MB
node 2 free: 128609 MB
node 3 cpus: 12 13 14 15 44 45 46 47

```

(Continued on next page)



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Platform Notes (Continued)

```

node 3 size: 129009 MB
node 3 free: 128633 MB
node 4 cpus: 16 17 18 19 48 49 50 51
node 4 size: 129021 MB
node 4 free: 128623 MB
node 5 cpus: 20 21 22 23 52 53 54 55
node 5 size: 128985 MB
node 5 free: 128542 MB
node 6 cpus: 24 25 26 27 56 57 58 59
node 6 size: 129021 MB
node 6 free: 128642 MB
node 7 cpus: 28 29 30 31 60 61 62 63
node 7 size: 129018 MB
node 7 free: 128614 MB
node distances:
node  0  1  2  3  4  5  6  7
0:  10 12 12 12 12 32 32 32
1:  12 10 12 12 12 32 32 32
2:  12 12 12 12 12 32 32 32
3:  12 12 12 10 32 32 32 32
4:  32 32 32 32 10 12 12 12
5:  32 32 32 32 12 10 12 12
6:  32 32 32 32 12 12 10 12
7:  32 32 32 32 12 12 12 10

```

From /proc/meminfo

MemTotal: 1056687440 kB

HugePages_Total: 0

Hugepagesize: 2048 kB

/sbin/ tuned-adm active

Current active profile: balanced

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

/usr/bin/lsb_release -d

Ubuntu 22.04.1 LTS

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

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Platform Notes (Continued)

```

debian_version: bookworm/sid
os-release:
  PRETTY_NAME="Ubuntu 22.04.1 LTS"
  NAME="Ubuntu"
  VERSION_ID="22.04"
  VERSION="22.04.1 LTS (Jammy Jellyfish)"
  VERSION_CODENAME=jammy
  ID=ubuntu
  ID_LIKE=debian
  HOME_URL="https://www.ubuntu.com/"

```

```

uname -a:
Linux h12dsu-7513 5.15.0-76-generic #64-Ubuntu SMP Thu Jan 5 11:43:13 UTC 2023 x86_64
x86_64 x86_64 GNU/Linux

```

Kernel self-reported vulnerability status:

CVE-2018-12207 (Intel MDS Mitigation):	Not affected
CVE-2018-3620 (Linux Terminal Fault):	Not affected
Microarchitectural Data Sampling:	Not affected
CVE-2017-5754 (meltdown):	Not affected
mmio stale data:	Not affected
retbleed:	Not affected
CVE-2018-3639 (Speculative Store Bypass):	Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2017-5703 (Spectre variant 1):	Mitigation: usercopy/swapgs barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):	Mitigation: Retpolines, IBPB: conditional, IBRS_FW, STIBP: always-on, RSB filling, PBRSE-eIBRS: Not affected
CVE-2020-0543 (Special Register Buffer Data Sampling):	Not affected
CVE-2019-11135 (TSX Asynchronous Abort):	Not affected

run-level 5 Jan 18 07:04

SPEC is set to: /home/cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
------------	------	------	------	-------	------	------------

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Platform Notes (Continued)

```
/dev/sda2      ext4  182G  37G  136G  1%
```

From /sys/devices/virtual/dmi/id

```
Vendor:       Supermicro
Product:      Super Server
Serial:       0123456789
```

Additional information from dmidecode 3.3 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 NO DIMM Unknown
16x SK Hynix HMAA8GR7AJR4N AN 64 GB 2 rank 3200
```

BIOS:

```
BIOS Vendor:   American Megatrends Inc.
BIOS Version:  5.22
BIOS Date:     09/24/2022
BIOS Revision: 5.22
```

(End of data from sysinfo program)

Compiler Version Notes

```
C | 502.gcc_r(peak)
```

```
AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on
LLVM Error.Version.12.0.0)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin
```

```
C | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak)
  | 525.x264_r(base, peak) 557.xz_r(base, peak)
```

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Compiler Version Notes (Continued)

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 | 502.gcc_r(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: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

C | 500.perbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak)
| 525.x264_r(base, peak) 557.xz_r(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++ | 523.xalancbmk_r(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: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

C++ | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base)

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Compiler Version Notes (Continued)

| 531.deepsjeng_r(base, peak) 541.leela_r(base, peak)

AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#8 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++ | 523.xalancbmk_r(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: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

C++ | 523.omniscpp_r(base, peak) 523.xalancbmk_r(base)
| 541.deepsjeng_r(base, peak) 541.leela_r(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 | 548.exchange2_r(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



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Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Base Portability Flags

```
500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LINUX_X64 -DSPEC_LP64
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64
```

Base Optimization Flags

C benchmarks:

```
-m64 -Wl,-allow-multiple-definition -Wl,-mllvm -Wl,-enable-licm-vrp
-flto -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 -ffast-math
-march=znver3 -fveclib=AMDLIBM -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-licm-vrp -mllvm -reduce-array-computations=3 -z muldefs
```

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SPEC CPU®2017 Integer Rate Results

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Supermicro

A+ Server 2124US-TNRP
(H12DSU-iN , AMD EPYC 7313)

SPECrate®2017_int_base =

SPECrate®2017_int_peak =

CPU2017 License: 001176

Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Jan-2023

Hardware Availability: Aug-2019

Software Availability: Jan-2023

SPEC has determined that this result does not comply with the SPEC CPU 2017 rules and reporting rules. Specifically, the submitter notified SPEC that the system as configured violates rule 2.3.1 (a) due to the use of an unsafe compiler option.

Base Optimization Flags (Continued)

C benchmarks (continued):

-lamdlibm -ljemalloc -lflang -lflangrti

C++ benchmarks:

-m64 -std=c++98 -Wl,-mllvm -Wl,-do-block-reorder=aggressive -flto
-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 -ffast-math
-march=znver3 -fveclib=AMDLIBM -mllvm -enable-partial-unswitch
-mllvm -unroll-threshold=500 -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 -lamdlibm
-ljemalloc -lflang -lflangrti

Fortran benchmarks:

-m64 -Wl,-mllvm -Wl,-finline-recursion=4
-Wl,-mllvm -Wl,-lto-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split
-flto -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 -ffast-math
-fveclib=AMDLIBM -z muldefs -mllvm -unroll-aggressive
-mllvm -unroll-threshold=500 -lamdlibm -ljemalloc -lflang -lflangrti

Base Other Flags

C benchmarks:

-Wno-unused-command-line-argument

C++ benchmarks:

-Wno-unused-command-line-argument



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Peak Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Peak Portability Flags

```
500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -D_FILE_OFFSET_BITS=64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LINUX -DSPEC_LP64
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64
```

Peak Optimization Flags

C benchmarks:

```
500.perlbench_r: -m64 -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-licm-vrp -flto
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-fprofile-instr-generate(pass 1)
-fprofile-instr-use(pass 2) -Ofast -march=znver3
-fveclib=AMDLIBM -fstruct-layout=7
-mllvm -unroll-threshold=50 -fremap-arrays
```

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Peak Optimization Flags (Continued)

500.perlbench_r (continued):

```
-flv-function-specialization -mllvm -inline-threshold=1000
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=false
-mllvm -function-specialize -mllvm -enable-licm-vrp
-mllvm -reduce-array-computations=3 -lamdllvm -ljemalloc
```

502.gcc_r: -m32 -Wl,-allow-multiple-definition

```
-Wl,-mllvm -Wl,-enable-licm-vrp -flto
-Wl,-mllvm -Wl,-function-specialize -Ofast -march=znver3
-fveclib=AMDLIBM -fstruct-layout=7
-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 -fgnu89-inline
-ljemalloc
```

505.mcf_r: basepeak = yes

525.x264_r: basepeak = yes

557.xz_r: basepeak = yes

C++ benchmarks:

basepeak = yes

```
525.malancbmk_r: -m32 -Wl,-mllvm -Wl,-do-block-reorder=aggressive -flto
-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 -finline-aggressive
-mllvm -unroll-threshold=100 -flv-function-specialization
-mllvm -enable-licm-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 -fvisibility=hidden
```

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Peak Optimization Flags (Continued)

523.xalancbmk_r (continued):

-ljemalloc

531.deepsjeng_r: basepeak = yes

541.leela_r: -m64 -std=c++98

-Wl,-mllvm -Wl,-do-block-reorder-aggressive -flto

-Wl,-mllvm -Wl,-function-specialize

-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6

-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast

-march=znver3 -fveclib=AMD_ZBM -finline-aggressive

-mllvm -unroll-threshold=10 -flv-function-specialization

-mllvm -enable-licm-vrp -mllvm -unroll-loops

-mllvm -aggressive-loop-unswitch

-mllvm -reduce-array-computations=3

-mllvm -global-vector-size-slp=true

-mllvm -do-block-reorder-aggressive

-fvirtual-function-elimination -fvisibility=hidden

-lamdlibm -ljemalloc

Fortran benchmarks:

548.exchange2_r: basepeak = yes

Peak Other Flags

C benchmarks (except as noted below):

-Wno-unused-command-line-argument

502.gcc_r: -L/usr/lib -Wno-unused-command-line-argument

-L/sppo/bin/cpu2017v115aocc3/amd_rate_aocc300_milan_A_lib/32

C++ benchmarks (except as noted below):

-Wno-unused-command-line-argument

523.xalancbmk_r: -L/usr/lib -Wno-unused-command-line-argument

-L/sppo/bin/cpu2017v115aocc3/amd_rate_aocc300_milan_A_lib/32



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

<http://www.spec.org/cpu2017/flags/aocc300-flags-B2.html>

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Milan-revG.html>

You can also download the XML flag sources by using the following links:

<http://www.spec.org/cpu2017/flags/aocc300-flags-B2.xml>

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Milan-revG.xml>

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