



SPEC CPU®2017 Integer Rate Result

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Supermicro

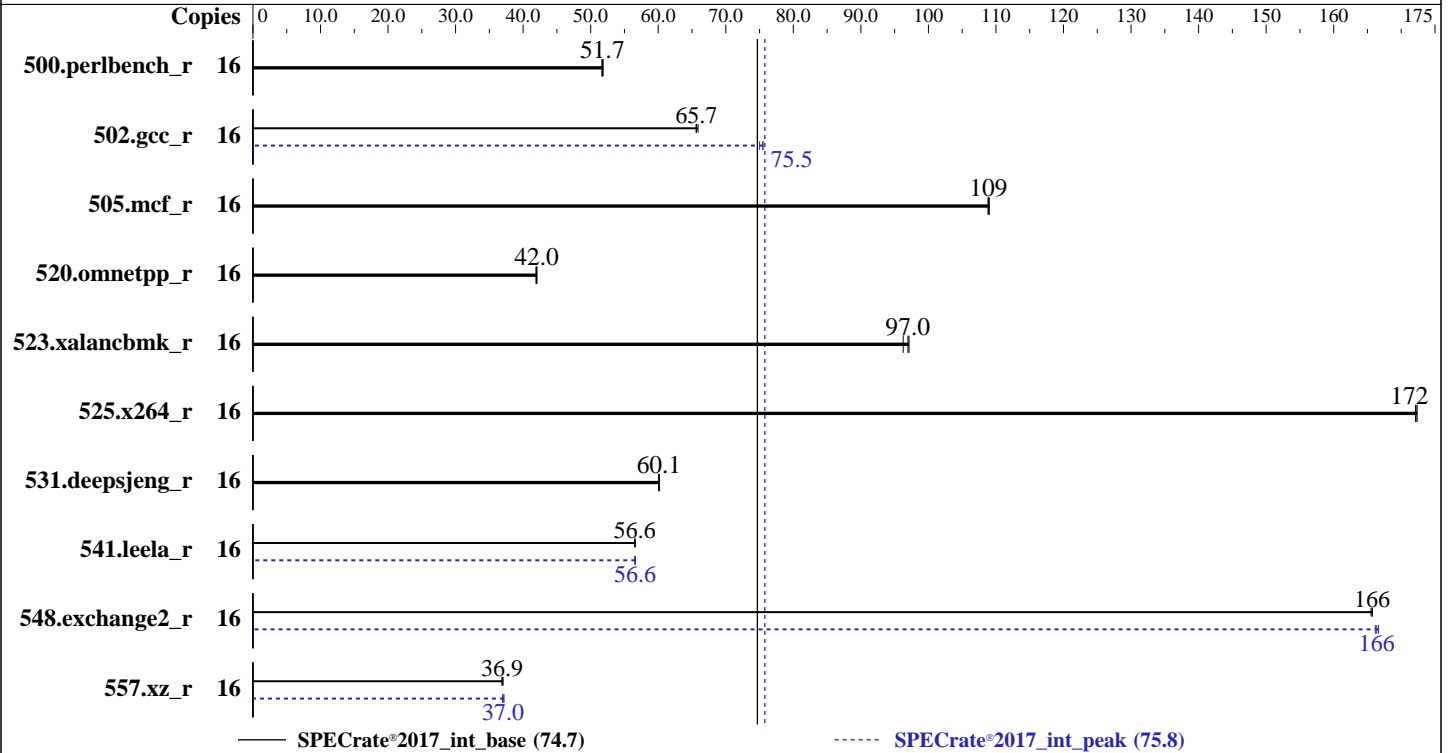
A+ Server AS -1015SV-WTNRT
(H13SVW-NT, AMD EPYC 8024P)

SPECrate®2017_int_base = 74.7

SPECrate®2017_int_peak = 75.8

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Aug-2023
Hardware Availability: Sep-2023
Software Availability: Aug-2023



Hardware

CPU Name: AMD EPYC 8024P
Max MHz: 3000
Nominal: 2400
Enabled: 8 cores, 1 chip, 2 threads/core
Orderable: 1 chip
Cache L1: 32 KB I + 32 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 32 MB I+D on chip per chip, 16 MB shared / 4 cores
Other: None
Memory: 384 GB (6 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 1 x 3.8 TB M.2 NVMe SSD
Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP4
Kernel 5.14.21-150400.24.74-default
Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
Parallel: No
Firmware: Version 1.0 released Sep-2023
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: None
Power Management: BIOS and OS set to prefer 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	16	493	51.7	491	51.8	492	51.7	16	493	51.7	491	51.8	492	51.7
502.gcc_r	16	345	65.7	345	65.6	344	65.9	16	300	75.5	302	75.0	300	75.5
505.mcf_r	16	237	109	237	109	238	109	16	237	109	237	109	238	109
520.omnetpp_r	16	501	41.9	499	42.0	500	42.0	16	501	41.9	499	42.0	500	42.0
523.xalancbmk_r	16	176	96.3	174	97.0	174	97.1	16	176	96.3	174	97.0	174	97.1
525.x264_r	16	163	172	163	172	163	172	16	163	172	163	172	163	172
531.deepsjeng_r	16	305	60.2	305	60.1	305	60.1	16	305	60.2	305	60.1	305	60.1
541.leela_r	16	469	56.6	468	56.6	469	56.5	16	468	56.6	469	56.5	468	56.6
548.exchange2_r	16	253	166	253	166	253	166	16	252	166	252	167	252	166
557.xz_r	16	468	36.9	469	36.9	467	37.0	16	468	37.0	467	37.0	465	37.2

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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>

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.



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Environment Variables Notes

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

```
LD_LIBRARY_PATH =  
    "/home/dexterb/spec-cpu2017-A1.1/amd_rate_aocc400_znver4_A_lib/lib:/home/dexterb/spec-cpu2017-A1.1/amd  
_rate_aocc400_znver4_A_lib/lib32:"  
MALLOC_CONF = "retain:true"
```

General Notes

Binaries were compiled on a system with 2x AMD EPYC 9174F CPU + 1.5TiB Memory using RHEL 8.6

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.

Platform Notes

BIOS Settings:

Determinism Control = Manual
Determinism Enable = Disable Performance Determinism
cTDP Control = Manual
cTDP = 100
Package Power Limit Control = Manual
Package Power Limit = 100

Sysinfo program /home/dexterb/spec-cpu2017-A1.1/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on 168-110 Sun Aug 20 08:17:48 2023

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

Table of contents

1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 249 (249.16+suse.173.g6441bb4114)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. sysctl
16. /sys/kernel/mm/transparent_hugepage
17. /sys/kernel/mm/transparent_hugepage/khugepaged
18. OS release
19. Disk information
20. /sys/devices/virtual/dmi/id

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Platform Notes (Continued)

21. dmidecode
22. BIOS

1. uname -a
Linux 168-110 5.14.21-150400.24.74-default #1 SMP PREEMPT_DYNAMIC Thu Jul 27 15:04:26 UTC 2023 (28a2488)
x86_64 x86_64 x86_64 GNU/Linux

2. w
08:17:48 up 2 min, 1 user, load average: 0.32, 0.22, 0.09
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
root tty1 - 08:16 12.00s 1.72s 0.07s /bin/bash ./amd_rate_aocc400_znver4_A1.sh

3. Username
From environment variable \$USER: root

4. ulimit -a
core file size (blocks, -c) unlimited
data seg size (kbytes, -d) unlimited
scheduling priority (-e) 0
file size (blocks, -f) unlimited
pending signals (-i) 1544341
max locked memory (kbytes, -l) 2097152
max memory size (kbytes, -m) unlimited
open files (-n) 1024
pipe size (512 bytes, -p) 8
POSIX message queues (bytes, -q) 819200
real-time priority (-r) 0
stack size (kbytes, -s) unlimited
cpu time (seconds, -t) unlimited
max user processes (-u) 1544341
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited

5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 30
login -- root
-bash
python3 ./run_amd_rate_aocc400_znver4_A1.py
/bin/bash ./amd_rate_aocc400_znver4_A1.sh
runcpu --config amd_rate_aocc400_znver4_A1.cfg --tune all --reportable --iterations 3 intrate
runcpu --configfile amd_rate_aocc400_znver4_A1.cfg --tune all --reportable --iterations 3 --nopower
--runmode rate --tune base:peak --size test:train:refrate intrate --nopreenv --note-preenv --logfile
\$SPEC/tmp/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2
specperl \$SPEC/bin/sysinfo
\$SPEC = /home/dexterb/spec-cpu2017-A1.1

6. /proc/cpuinfo
model name : AMD EPYC 8024P 8-Core Processor
vendor_id : AuthenticAMD
cpu family : 25
model : 160
stepping : 2
microcode : 0xaa0020f

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Platform Notes (Continued)

bugs : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size : 3584 4K pages
cpu cores : 8
siblings : 16
1 physical ids (chips)
16 processors (hardware threads)
physical id 0: core ids 0-3,8-11
physical id 0: apicids 0-7,16-23

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

7. lscpu

From lscpu from util-linux 2.37.2:

```
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Address sizes: 52 bits physical, 57 bits virtual
Byte Order: Little Endian
CPU(s): 16
On-line CPU(s) list: 0-15
Vendor ID: AuthenticAMD
Model name: AMD EPYC 8024P 8-Core Processor
CPU family: 25
Model: 160
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 1
Stepping: 2
Frequency boost: enabled
CPU max MHz: 2400.0000
CPU min MHz: 1500.0000
BogoMIPS: 4792.88
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 rapl
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 ssbd mba ibrs ibpb stibp vmmcall fsgsbase bmi1
avx2 smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap
avx512ifma clflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt
xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
avx512_bf16 clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin arat npt lbrv
svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists
pausefilter pfthreshold avic v_vmsave_vmload vgif v_spec_ctrl avx512vbmi
umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush_l1d
AMD-V
Virtualization:
L1d cache: 256 KiB (8 instances)
L1i cache: 256 KiB (8 instances)
L2 cache: 8 MiB (8 instances)
L3 cache: 32 MiB (2 instances)
NUMA node(s): 1
NUMA node0 CPU(s): 0-15
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
```

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Platform Notes (Continued)

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/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Retpolines, IBPB conditional, IBRS_FW, STIBP always-on, RSB filling, PBRSE-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	256K	8	Data	1	64	1	64
L1i	32K	256K	8	Instruction	1	64	1	64
L2	1M	8M	8	Unified	2	2048	1	64
L3	16M	32M	16	Unified	3	16384	1	64

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

```
available: 1 nodes (0)
node 0 cpus: 0-15
node 0 size: 386115 MB
node 0 free: 384891 MB
node distances:
node 0
0: 10
```

9. /proc/meminfo

MemTotal: 395381888 kB

10. who -r

run-level 3 Aug 20 08:16

11. Systemd service manager version: systemd 249 (249.16+suse.173.g6441bb4114)

```
Default Target Status
multi-user running
```

12. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager firewalld getty@ haveged irqbalance issue-generator kbdsettings kdump kdump-early klog lvm2-monitor nscd nvme-fc-boot-connections postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
enabled-runtime	systemd-remount-fs
disabled	autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info gpm grub2-once haveged-switch-root hwloc-dump-hwdata ipmi ipmievd issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap nvme-autoconnect rdisc rpcbind rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts snmpd snmptrapd systemd-boot-check-no-failures systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd udisks2
indirect	wickedd

13. Linux kernel boot-time arguments, from /proc/cmdline

BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.24.74-default

(Continued on next page)



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Platform Notes (Continued)

```
root=UUID=89e224e2-94dc-43a8-8cb1-0fd0b5a2aa63
splash=silent
resume=/dev/disk/by-uuid/2dfe6e9a-6fcf-4e8c-8483-10af06679f16
mitigations=auto
quiet
security=apparmor
crashkernel=268M,high
crashkernel=72M,low
```

```
-----
14. cpupower frequency-info
analyzing CPU 0:
  current policy: frequency should be within 1.50 GHz and 2.40 GHz.
                  The governor "performance" may decide which speed to use
                  within this range.
  boost state support:
    Supported: yes
    Active: yes
```

```
-----
15. sysctl
kernel.numa_balancing          0
kernel.randomize_va_space     0
vm.compaction_proactiveness   20
vm.dirty_background_bytes     0
vm.dirty_background_ratio     10
vm.dirty_bytes                 0
vm.dirty_expire_centisecs    3000
vm.dirty_ratio                 8
vm.dirty_writeback_centisecs  500
vm.dirtytime_expire_seconds  43200
vm.extfrag_threshold          500
vm.min_unmapped_ratio         1
vm.nr_hugepages                0
vm.nr_hugepages_mempolicy     0
vm.nr_overcommit_hugepages    0
vm.swappiness                  1
vm.watermark_boost_factor     15000
vm.watermark_scale_factor     10
vm.zone_reclaim_mode          1
```

```
-----
16. /sys/kernel/mm/transparent_hugepage
defrag          [always] defer+madvise madvise never
enabled         [always] madvise never
hpage_pmd_size 2097152
shmem_enabled  always within_size advise [never] deny force
```

```
-----
17. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs  60000
defrag                  1
max_ptes_none          511
max_ptes_shared        256
max_ptes_swap          64
pages_to_scan          4096
scan_sleep_millisecs   10000
```

```
-----
18. OS release
```

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Platform Notes (Continued)

From /etc/*-release /etc/*-version
os-release SUSE Linux Enterprise Server 15 SP4

19. Disk information

SPEC is set to: /home/dexterb/spec-cpu2017-A1.1
Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme0n1p3 xfs 3.1T 6.2G 3.1T 1% /home

20. /sys/devices/virtual/dmi/id

Vendor: Supermicro
Product: Super Server
Product Family: SMC H13
Serial: 123456789

21. dmidecode

Additional information from dmidecode 3.4 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:
6x Micron Technology MTC40F2046S1RC48BA1 64 GB 2 rank 4800

22. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 1.0
BIOS Date: 08/11/2023
BIOS Revision: 5.30

Compiler Version Notes

C | 502.gcc_r(peak)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/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)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin

C | 502.gcc_r(peak)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)

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Compiler Version Notes (Continued)

Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/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)

=====
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin

=====
C++ | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak)
| 541.leela_r(base, peak)

=====
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin

=====
Fortran | 548.exchange2_r(base, peak)

=====
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin

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

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Base Portability Flags (Continued)

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

Base Optimization Flags

C benchmarks:

-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather
-z muldefs -O3 -march=znver4 -fveclib=AMDLIBM -ffast-math
-fstruct-layout=7 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lflang
-lamdalloc

C++ benchmarks:

-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -z muldefs -O3
-march=znver4 -fveclib=AMDLIBM -ffast-math
-mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -zopt
-fvirtual-function-elimination -fvisibility=hidden -lamdlibm -lflang
-lamdalloc-ext

Fortran benchmarks:

-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -z muldefs -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fepilog-vectorization-of-inductions
-mllvm -optimize-strided-mem-cost -floop-transform
-mllvm -unroll-aggressive -mllvm -unroll-threshold=500 -lamdlibm
-lflang -lamdalloc



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Supermicro

A+ Server AS -1015SV-WTNRT
(H13SVW-NT , AMD EPYC 8024P)

SPECrate®2017_int_base = 74.7

SPECrate®2017_int_peak = 75.8

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Aug-2023
Hardware Availability: Sep-2023
Software Availability: Aug-2023

Base Other Flags

C benchmarks:

-Wno-unused-command-line-argument

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

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: basepeak = yes

(Continued on next page)



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Peak Optimization Flags (Continued)

```
502.gcc_r: -m32 -flto -z muldefs -Ofast -march=znver4
-fveclib=AMDLIBM -ffast-math -fstruct-layout=7
-mllvm -unroll-threshold=50 -fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -fgnu89-inline
-lamdalloc
```

505.mcf_r: basepeak = yes

525.x264_r: basepeak = yes

```
557.xz_r: -m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math
-fstruct-layout=7 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lflang -lamdalloc
```

C++ benchmarks:

520.omnetpp_r: basepeak = yes

523.xalancbmk_r: basepeak = yes

531.deepsjeng_r: basepeak = yes

```
541.leela_r: -m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math
-finline-aggressive -mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -zopt
-fvirtual-function-elimination -fvisibility=hidden
-lamdlibm -lflang -lamdalloc-ext
```

Fortran benchmarks:

```
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fepilog-vectorization-of-inductions
-mllvm -optimize-strided-mem-cost -floop-transform
-mllvm -unroll-aggressive -mllvm -unroll-threshold=500 -lamdlibm
-lflang -lamdalloc
```



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Peak Other Flags

C benchmarks (except as noted below):

-Wno-unused-command-line-argument

502.gcc_r: -L/usr/lib32 -Wno-unused-command-line-argument

-L/home/work/cpu2017/v119/aocc4/znver4/rate/amd_rate_aocc400_znver4_A_lib/lib32

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

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

<http://www.spec.org/cpu2017/flags/aocc400-flags.2023-09-13.html>

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

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

<http://www.spec.org/cpu2017/flags/aocc400-flags.2023-09-13.xml>

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

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Tested with SPEC CPU®2017 v1.1.9 on 2023-08-20 11:17:47-0400.

Report generated on 2023-09-18 11:39:31 by CPU2017 PDF formatter v6716.

Originally published on 2023-09-18.