



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Supermicro

Mainstream A+ Server AS -1015A-MT  
(H13SAE-MF , AMD EPYC 4584PX)

SPECspeed®2017\_int\_base = 19.4

SPECspeed®2017\_int\_peak = 19.8

CPU2017 License: 001176

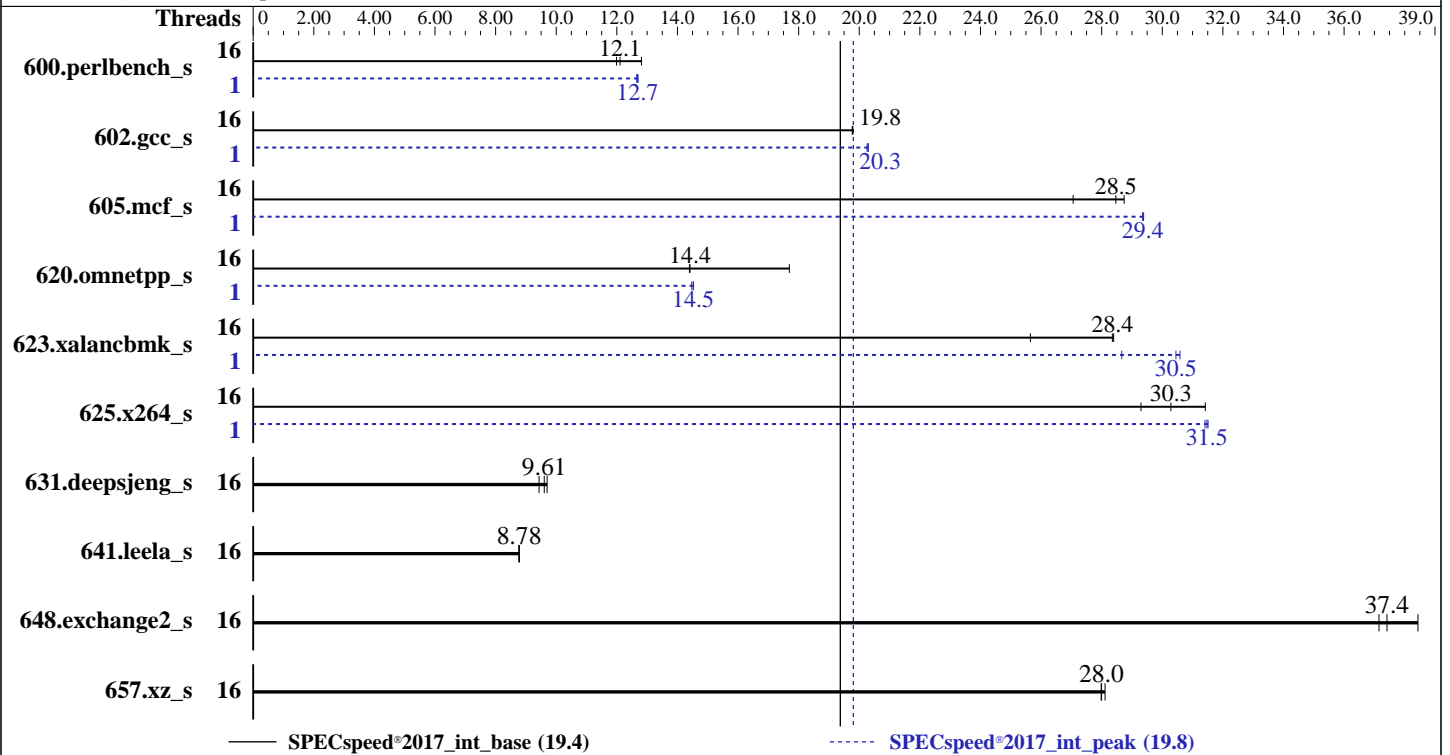
Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Apr-2024

Hardware Availability: May-2024

Software Availability: Mar-2024



### Hardware

CPU Name: AMD EPYC 4584PX  
 Max MHz: 5700  
 Nominal: 4200  
 Enabled: 16 cores, 1 chip  
 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: 128 MB I+D on chip per chip, 96 MB shared / 8 cores + 32 MB shared / 8 cores  
 Other: None  
 Memory: 64 GB (2 x 32 GB 2Rx8 PC5-5600B-U, running at 5200)  
 Storage: 1 x 960 GB NVMe SSD  
 Other: CPU Cooling: Air

### Software

OS: Ubuntu 22.04.4 LTS  
 Kernel 6.5.0-27-generic  
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC  
 Parallel: Yes  
 Firmware: Version 1.2a released Feb-2024  
 File System: ext4  
 System State: Run level 5 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 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						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	16	<b>147</b>	<b>12.1</b>	139	12.8	148	12.0	1	<b>140</b>	<b>12.7</b>	140	12.7	140	12.7
602.gcc_s	16	<b>201</b>	<b>19.8</b>	201	19.8	201	19.8	1	<b>196</b>	<b>20.3</b>	196	20.3	197	20.3
605.mcf_s	16	164	28.7	<b>166</b>	<b>28.5</b>	174	27.1	1	161	29.4	161	29.4	<b>161</b>	<b>29.4</b>
620.omnetpp_s	16	<b>113</b>	<b>14.4</b>	113	14.4	92.2	17.7	1	<b>112</b>	<b>14.5</b>	112	14.5	113	14.5
623.xalancbmk_s	16	49.9	28.4	<b>50.0</b>	<b>28.4</b>	55.2	25.6	1	<b>46.5</b>	<b>30.5</b>	49.4	28.7	46.3	30.6
625.x264_s	16	60.2	29.3	56.1	31.4	<b>58.2</b>	<b>30.3</b>	1	56.0	31.5	56.2	31.4	<b>56.0</b>	<b>31.5</b>
631.deepsjeng_s	16	152	9.43	148	9.70	<b>149</b>	<b>9.61</b>	16	152	9.43	148	9.70	<b>149</b>	<b>9.61</b>
641.leela_s	16	<b>194</b>	<b>8.78</b>	194	8.78	195	8.77	16	<b>194</b>	<b>8.78</b>	194	8.78	195	8.77
648.exchange2_s	16	79.1	37.2	<b>78.6</b>	<b>37.4</b>	76.5	38.4	16	79.1	37.2	<b>78.6</b>	<b>37.4</b>	76.5	38.4
657.xz_s	16	220	28.1	221	28.0	<b>221</b>	<b>28.0</b>	16	220	28.1	221	28.0	<b>221</b>	<b>28.0</b>

SPECspeed®2017\_int\_base = **19.4**

SPECspeed®2017\_int\_peak = **19.8**

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) for all allocations,  
'echo always > /sys/kernel/mm/transparent\_hugepage/enabled' and  
'echo always > /sys/kernel/mm/transparent\_hugepage/defrag' run as root.



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**Tested by:** Supermicro

**Test Date:** Apr-2024  
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### Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
GOMP\_CPU\_AFFINITY = "0-15"  
LD\_LIBRARY\_PATH = "/home/cpu2017/amd\_speed\_aocc400\_znver4\_A\_lib/lib:"  
LIBOMP\_NUM\_HIDDEN\_HELPER\_THREADS = "0"  
MALLOC\_CONF = "oversize\_threshold:0,retain:true"  
OMP\_DYNAMIC = "false"  
OMP\_SCHEDULE = "static"  
OMP\_STACKSIZE = "128M"  
OMP\_THREAD\_LIMIT = "16"

Environment variables set by runcpu during the 600.perlbench\_s peak run:  
GOMP\_CPU\_AFFINITY = "15"

Environment variables set by runcpu during the 602.gcc\_s peak run:  
GOMP\_CPU\_AFFINITY = "15"

Environment variables set by runcpu during the 605.mcf\_s peak run:  
GOMP\_CPU\_AFFINITY = "15"

Environment variables set by runcpu during the 620.omnetpp\_s peak run:  
GOMP\_CPU\_AFFINITY = "15"

Environment variables set by runcpu during the 623.xalancbmk\_s peak run:  
GOMP\_CPU\_AFFINITY = "15"

Environment variables set by runcpu during the 625.x264\_s peak run:  
GOMP\_CPU\_AFFINITY = "15"

### 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:  
SMT Control = Disable

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on as-1015a-mt Tue Apr 16 05:44:45 2024

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

-----  
Table of contents  
-----

1. uname -a
2. w
3. Username

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### Platform Notes (Continued)

- 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 (249.11-0ubuntu3.12)
- 12. Failed units, from systemctl list-units --state=failed
- 13. Services, from systemctl list-unit-files
- 14. Linux kernel boot-time arguments, from /proc/cmdline
- 15. cpupower frequency-info
- 16. sysctl
- 17. /sys/kernel/mm/transparent\_hugepage
- 18. /sys/kernel/mm/transparent\_hugepage/khugepaged
- 19. OS release
- 20. Disk information
- 21. /sys/devices/virtual/dmi/id
- 22. dmidecode
- 23. BIOS

```
-----
1. uname -a
Linux as-1015a-mt 6.5.0-27-generic #28~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Fri Mar 15 10:51:06 UTC 2 x86_64
x86_64 x86_64 GNU/Linux
-----
```

```
-----
2. w
05:44:45 up 5 min, 4 users, load average: 0.09, 0.06, 0.01
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
lab tty1 - 05:41 5.00s 0.24s 0.01s -bash
lab pts/0 - 05:41 5.00s 0.74s 0.21s sudo su -
lab tty2 - 05:41 3.00s 0.01s 0.00s -bash
lab pts/1 - 05:42 3.00s 0.03s 0.00s sudo su -
-----
```

```
-----
3. Username
From environment variable $USER: root
From the command 'logname': lab
-----
```

```
-----
4. ulimit -a
time(seconds) unlimited
file(blocks) unlimited
data(kbytes) unlimited
stack(kbytes) unlimited
coredump(blocks) 0
memory(kbytes) unlimited
locked memory(kbytes) 2097152
process 253496
nofiles 1024
vmemory(kbytes) unlimited
locks unlimited
rtprio 0
-----
```

```
-----
5. sysinfo process ancestry
/sbin/init
/bin/login -p --
-----
```

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### Platform Notes (Continued)

```
-bash
sudo su -
sudo su -
su -
-bash
python3 ./run_amd_speed_aocc400_znver4_A1.py
/bin/bash ./amd_speed_aocc400_znver4_A1.sh
runcpu --config amd_speed_aocc400_znver4_A1.cfg --tune all --reportable --iterations 3 intspeerd
runcpu --configfile amd_speed_aocc400_znver4_A1.cfg --tune all --reportable --iterations 3 --nopower
--runmode speed --tune base:peak --size test:train:refspeed intspeerd --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.001/templogs/preenv.intspeerd.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

```
6. /proc/cpuinfo
model name      : AMD EPYC 4584PX 16-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 97
stepping       : 2
microcode      : 0xa601206
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srso
TLB size      : 3584 4K pages
cpu cores     : 16
siblings       : 16
1 physical ids (chips)
16 processors (hardware threads)
physical id 0: core ids 0-15
physical id 0: apicids 0-15
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:         48 bits physical, 48 bits virtual
Byte Order:            Little Endian
CPU(s):                16
On-line CPU(s) list:  0-15
Vendor ID:             AuthenticAMD
Model name:            AMD EPYC 4584PX 16-Core Processor
CPU family:            25
Model:                 97
Thread(s) per core:    1
Core(s) per socket:    16
Socket(s):             1
Stepping:              2
CPU max MHz:           5759.0000
CPU min MHz:           400.0000
BogoMIPS:              8384.17
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 amd_lbr_v2 nopl nonstop_tsc cpuid extd_apicid
aperfperf rapl pni pclmulqdq monitor ssse3 fma cx16 sse4_1 sse4_2
movbe popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic
cr8_legacy abm sse4a misalignsse 3dnowprefetch osvw ibs skinit wdt tce
```

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### Platform Notes (Continued)

topoext perfctr\_core perfctr\_nb bpext perfctr\_llc mwaitx cpb cat\_l3  
cdp\_l3 hw\_pstate ssbd mba perfmon\_v2 ibrs ibpb stibp ibrs\_enhanced  
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 cppc arat npt lbrv svm\_lock nrip\_save tsc\_scale vmcb\_clean  
flushbyasid decodeassists pausefilter pfthreshold avic v\_vmsave\_vmload  
vgif x2avic v\_spec\_ctrl vnmi avx512vbmi umip pku ospke avx512\_vbmi2  
gfni vaes vpclmulqdq avx512\_vnni avx512\_bitalg avx512\_vpopcntdq rdpid  
overflow\_recov succor smca flush\_l1d

Virtualization: AMD-V  
L1d cache: 512 KiB (16 instances)  
L1i cache: 512 KiB (16 instances)  
L2 cache: 16 MiB (16 instances)  
L3 cache: 128 MiB (2 instances)  
NUMA node(s): 1  
NUMA node0 CPU(s): 0-15  
Vulnerability Gather data sampling: Not affected  
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 rstack overflow: Mitigation; Safe RET  
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl  
Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and \_\_user pointer sanitization  
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS, IBPB conditional, STIBP disabled, RSB filling, PBRBS-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 512K 8 Data 1 64 1 64  
L1i 32K 512K 8 Instruction 1 64 1 64  
L2 1M 16M 8 Unified 2 2048 1 64  
L3 96M 128M 16 Unified 3 98304 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: 63428 MB  
node 0 free: 62861 MB  
node distances:  
node 0  
0: 10

9. /proc/meminfo  
MemTotal: 64950452 kB

10. who -r  
run-level 5 Apr 16 05:41

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### Platform Notes (Continued)

11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.12)

Default Target Status  
graphical degraded

12. Failed units, from systemctl list-units --state=failed

UNIT	LOAD	ACTIVE	SUB	DESCRIPTION
* systemd-networkd-wait-online.service	loaded	failed	failed	Wait for Network to be Configured

13. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	ModemManager apparmor blk-availability cloud-config cloud-final cloud-init cloud-init-local console-setup cron dmesg e2scrub_reap finalrd getty@ gpu-manager grub-common grub-initrd-fallback irqbalance keyboard-setup lm-sensors lvm2-monitor lxd-agent multipathd networkd-dispatcher open-iscsi open-vm-tools pollinate rsyslog secureboot-db setvtrgb ssh systemd-networkd systemd-networkd-wait-online systemd-pstore systemd-resolved systemd-timesyncd thermald ua-reboot-cmds ubuntu-advantage udisks2 ufw vgauth
enabled-runtime	netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
disabled	console-getty debug-shell iscsid nftables rsync serial-getty@ systemd-boot-check-no-failures systemd-network-generator systemd-sysext systemd-time-wait-sync upower
generated	apport
indirect	uuid
masked	cryptdisks cryptdisks-early hwclock lvm2 multipath-tools-boot rc rcS screen-cleanup sudo x11-common

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

BOOT\_IMAGE=/boot/vmlinuz-6.5.0-27-generic  
root=UUID=493aa310-a89f-44f0-97e2-e438e6abbb08  
ro

15. cpupower frequency-info

analyzing CPU 10:  
current policy: frequency should be within 400 MHz and 5.76 GHz.  
The governor "performance" may decide which speed to use within this range.  
  
boost state support:  
Supported: yes  
Active: yes  
Boost States: 0  
Total States: 2  
Pstate-P0: 4200MHz

16. 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

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### Platform Notes (Continued)

```

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

```

```

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

```

```

-----
18. /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

```

```

-----
19. OS release
From /etc/*-release /etc/*-version
os-release Ubuntu 22.04.4 LTS

```

```

-----
20. Disk information
SPEC is set to: /home/cpu2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/nvme0n1p2 ext4  879G   17G  817G   3% /

```

```

-----
21. /sys/devices/virtual/dmi/id
Vendor:          Supermicro
Product:         Super Server
Product Family:  Family
Serial:          0123456789

```

```

-----
22. dmidecode
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:
  2x Micron Technology MTC16C2085S1UC56BGZ 32 GB 2 rank 5600, configured at 5200
  2x NO DIMM NO DIMM

```

```

-----
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:      American Megatrends International, LLC.
BIOS Version:     1.2a

```

(Continued on next page)





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## Platform Notes (Continued)

BIOS Date: 02/15/2024  
BIOS Revision: 5.32

## 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 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++ | 620.omnetpp\_s(base, peak) 623.xalancbmk\_s(base, peak) 631.deepsjeng\_s(base, peak)  
| 641.leela\_s(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 | 648.exchange2\_s(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

600.perlbench\_s: -DSPEC\_LINUX\_X64 -DSPEC\_LP64  
602.gcc\_s: -DSPEC\_LP64

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

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## Supermicro

Mainstream A+ Server AS -1015A-MT  
(H13SAE-MF , AMD EPYC 4584PX)

SPECspeed®2017\_int\_base = 19.4

SPECspeed®2017\_int\_peak = 19.8

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

**Test Date:** Apr-2024  
**Hardware Availability:** May-2024  
**Software Availability:** Mar-2024

## Base Portability Flags (Continued)

```
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 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-allow-multiple-definition -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-freemap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -fopenmp=libomp -lomp -lamdlibm -lflang
-lamdalloc
```

### C++ benchmarks:

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

### Fortran benchmarks:

```
-m64 -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 -fopenmp -flto -mllvm -optimize-strided-mem-cost
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc
```



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## Base Other Flags

C benchmarks:  
-Wno-return-type -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

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:  
600.perlbench\_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-allow-multiple-definition -Ofast -march=znver4  
-fveclib=AMDLIBM -ffast-math -fopenmp -flto  
-fstruct-layout=9 -mllvm -unroll-threshold=50  
-fremap-arrays -fstrip-mining  
-mllvm -inline-threshold=1000  
-mllvm -reduce-array-computations=3 -DSPEC\_OPENMP -zopt  
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang  
602.gcc\_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3

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## Supermicro

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CPU2017 License: 001176

Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Apr-2024

Hardware Availability: May-2024

Software Availability: Mar-2024

## Peak Optimization Flags (Continued)

602.gcc\_s (continued):

```
-Wl,-allow-multiple-definition -z muldefs -Ofast  
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp  
-flto -fstruct-layout=9 -mllvm -unroll-threshold=50  
-fremap-arrays -fstrip-mining  
-mllvm -inline-threshold=1000  
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt  
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang
```

605.mcf\_s: Same as 600.perlbench\_s

625.x264\_s: Same as 600.perlbench\_s

657.xz\_s: basepeak = yes

C++ benchmarks:

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

```
623.xalancbmk_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-do-block-reorder=aggressive -Ofast  
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp  
-flto -finline-aggressive -mllvm -unroll-threshold=100  
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt  
-mllvm -do-block-reorder=aggressive  
-fvirtual-function-elimination -fvisibility=hidden  
-fopenmp=libomp -lomp -lamdlibm -lamdalloc-ext -lflang
```

631.deepsjeng\_s: basepeak = yes

641.leela\_s: basepeak = yes

Fortran benchmarks:

648.exchange2\_s: basepeak = yes



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## Peak Other Flags

C benchmarks:

-Wno-return-type -Wno-unused-command-line-argument

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-A1.2.html>

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-AM5-revA.html>

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

<http://www.spec.org/cpu2017/flags/aocc400-flags-A1.2.xml>

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-AM5-revA.xml>

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