**Supermicro**

**A+ Server 2115GT-HNTF**
(H13SST-G , AMD EPYC 9174F)

<table>
<thead>
<tr>
<th>SPECspeed®2017_fp_base</th>
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<tr>
<td>SPECspeed®2017_fp_peak</td>
<td>167</td>
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</tbody>
</table>

**CPU2017 License:** 001176  
**Test Date:** Feb-2023  
**Test Sponsor:** Supermicro  
**Hardware Availability:** Nov-2022  
**Tested by:** Supermicro  
**Software Availability:** Jan-2023

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_fp_base (165)</th>
<th>SPECspeed®2017_fp_peak (167)</th>
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<tr>
<td>0</td>
<td>520</td>
<td>560</td>
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<tr>
<td>20</td>
<td>550</td>
<td>590</td>
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<tr>
<td>40</td>
<td>580</td>
<td>620</td>
</tr>
<tr>
<td>60</td>
<td>610</td>
<td>650</td>
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</table>

**603.bwaves_s**  
Threads: 16  
Score: 224

**607.cactuBSSN_s**  
Threads: 16  
Score: 797

**619.lbm_s**  
Threads: 16  
Score: 89.2

**621.wrf_s**  
Threads: 16  
Score: 153

**627.cam4_s**  
Threads: 16  
Score: 82.2

**628.pop2_s**  
Threads: 16  
Score: 92.9

**638.imagick_s**  
Threads: 16  
Score: 139

**644.nab_s**  
Threads: 16  
Score: 223

**649.fotonik3d_s**  
Threads: 16  
Score: 129

**654.roms_s**  
Threads: 16  
Score: 212

### Hardware

- **CPU Name:** AMD EPYC 9174F  
- **Max MHz:** 4400  
- **Nominal:** 4100  
- **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:** 256 MB I+D on chip per chip, 32 MB shared / 2 cores  
- **Other:** None  
- **Memory:** 1152 GB (12 x 96 GB 2Rx8 PC5-4800B-R)  
- **Storage:** 1 x 1.92 TB SATA III SSD  
- **Other:** None  

### Software

- **OS:** Ubuntu 22.04.1 LTS  
- **Kernel:** 5.15.0-58-generic  
- **Compiler:** C/C++/Fortran: Version 4.0.0 of AOCC  
- **Parallel:** Yes  
- **Firmware:** Version 1.1 released Jan-2023  
- **File System:** ext4  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 64-bit  
- **Other:** None  
- **Power Management:** BIOS and OS set to max performance at the cost of additional power usage.
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A+ Server 2115GT-HNTF
(H13SST-G, AMD EPYC 9174F)

SPECspeed®2017_fp_base = 165
SPECspeed®2017_fp_peak = 167

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Base Threads</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
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<td>74.0 797</td>
<td>74.0 797</td>
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<tr>
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<td>74.4 224</td>
<td>74.4 224</td>
<td>75.5 221</td>
<td>74.4 224</td>
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<td>58.7 89.2</td>
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<td>58.4 89.7</td>
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<td>108 82.2</td>
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</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 copy 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.
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SPECspeed®2017_fp_base = 165
SPECspeed®2017_fp_peak = 167

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.
To always enable THP for peak runs of:
603.bwaves_s, 607.cactuBSSN_s, 619.lbm_s, 627.cam4_s, 628.pop2_s, 638.imagick_s, 644.nab_s, 649.fotonik3d_s:
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled; echo always > /sys/kernel/mm/transparent_hugepage/defrag'
run as root.
To disable THP for peak runs of 621.wrf_s:
'echo never > /sys/kernel/mm/transparent_hugepage/enabled; echo always > /sys/kernel/mm/transparent_hugepage/defrag'
run as root.
To enable THP only on request for peak runs of 654.roms_s:
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled; echo madvise > /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 = "0-15"
LD_LIBRARY_PATH = "/home/cpu2017/amd_speed_aoc2400_genoa_B_lib/lib;"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOCC_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 603.bwaves_s peak run:
GOMP_CPU_AFFINITY = "0-15"

Environment variables set by runcpu during the 619.lbm_s peak run:
GOMP_CPU_AFFINITY = "0-15"

Environment variables set by runcpu during the 621.wrf_s peak run:
GOMP_CPU_AFFINITY = "0-15"

Environment variables set by runcpu during the 628.pop2_s peak run:
GOMP_CPU_AFFINITY = "0-15"

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)

(Continued on next page)
General Notes (Continued)

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 = 400
Package Power Limit Control = Manual
Package Power Limit = 400
SMT Control = Disabled

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on h13sst-9174f Thu Feb 9 06:56:47 2023

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

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

**Supermicro**

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**CPU2017 License:** 001176

**Test Sponsor:** Supermicro

**Tested by:** Supermicro

**Test Date:** Feb-2023

**Hardware Availability:** Nov-2022

**Software Availability:** Jan-2023

## Platform Notes (Continued)

22. `dmidecode`

23. `BIOS`

---

1. `uname -a`

```plaintext
Linux h13sst-9174f 5.15.0-58-generic #64-Ubuntu SMP Thu Jan 5 11:43:13 UTC 2023 x86_64 x86_64 x86_64
GNU/Linux
```

2. `w`

```plaintext
06:56:47 up 4 min,  2 users,  load average: 0.11, 0.09, 0.03
USER   TTY      FROM           LOGIN@   IDLE   JCPU    PCPU WHAT
lab    tty1     -              06:55    1:33   0.49s  0.00s  -bash
lab    pts/0    -              06:55    7.00s  0.82s  0.47s sudo su -
```

3. Username

   - From environment variable `$USER`: `root`
   - From the command `logname`: `lab`

4. `ulimit -a`

   ```plaintext
   time(seconds)    unlimited
   file(blocks)     unlimited
   data(kbytes)     unlimited
   stack(kbytes)    unlimited
   coredump(blocks) 0
   memory(kbytes)   unlimited
   locked memory(kbytes) 2097152
   process          4641181
  nofiles           1024
   vmemory(kbytes)   unlimited
   locks             unlimited
   rtprio            0
   ```

5. `sysinfo process ancestry`

   ```plaintext
   /sbin/init
   /bin/login -p --
   -bash
   sudo su -
   sudo su -
   su -
   -bash
   python3 ./run_amd_speed_aocc400_genoa_B1.py
   /bin/bash ./amd_speed_aocc400_genoa_B1.sh
   ```

(Continued on next page)
Supermicro
A+ Server 2115GT-HNTF
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SPECspeed®2017_fp_base = 165
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Platform Notes (Continued)

runcpu --config amd_speed_aocc400_genoa_B1.cfg --tune all --reportable --iterations 3 fpspeed
runcpu --configfile amd_speed_aocc400_genoa_B1.cfg --tune all --reportable --iterations 3 --nopower
--runmode speed --tune base:peak --size test:train:refspeed fpspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.001/templogs/preenv.fpspeed.001.0.log --lognum 001.0 --from_runcpu 2
specper1 $SPEC/bin/sysinfo
$SPEC = /home/cpu2017

6. /proc/cpuinfo
model name : AMD EPYC 9174F 16-Core Processor
vendor_id : AuthenticAMD
cpu family : 25
model : 17
stepping : 1
microcode : 0xa101111
bugs : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size : 3584 4K pages
cpu cores : 16
siblings : 16
1 physical ids (chips)
16 processors (hardware threads)
physical id 0: core ids 0-1,16-17,32-33,48-49,64-65,80-81,96-97,112-113
physical id 0: apicids 0-1,16-17,32-33,48-49,64-65,80-81,96-97,112-113
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 9174F 16-Core Processor
CPU family: 25
Model: 17
Thread(s) per core: 1
Core(s) per socket: 16
Socket(s): 1
Stepping: 1
Frequency boost: enabled
CPU max MHz: 4409.0000
CPU min MHz: 400.0000

(Continued on next page)
**SPEC CPU®2017 Floating Point Speed Result**

**Supermicro**

A+ Server 2115GT-HNTF (H13SST-G, AMD EPYC 9174F)

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**Tested by:** Supermicro  
**Test Date:** Feb-2023  
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Platform Notes (Continued)

BogoMIPS: 8199.58

Flags:

```
fpum vs e de pse tsc m sr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdscpl mpm
constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid aperfmperf rapl
pmi pclmulqdq monitor ssse3 fma cx16 pclid sse4_1 m 2apic movbe
popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy
abm sse4a misalignsse 3nowprefetch osvw ibs skinit wdt tce topoext
perfcnot core perfctr_nb bptext perfctr_llc mwaitx cpb cat_l3 cdq_l3
invcpc_single hwp_stpstate ssbd mba ibrs ibpb vmpcall fsbsbase bm1
avx2 smep bmi2 erms invpcid cm rdt_a avx512f avx512dq rdseed adx smap
avx512ifma cliflshopt clwb avx512cd sha ni avx512bw avx512vl xsaveopt
xsave xgetbv1 xsaves cmp1 l1c cmpm9qoum l1c cmpm9qoum l1c cmpm9qoum l1c
avx512_bf16 clzero irperf xsaveepror rdpru wnoinvd amd_ppl1 cppc arat npt
lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasia decodeassist
pausefilter pthreshold avic v_vmsave_vmload vgif v_spec_ctrl avx512vbmi
umip pk0 ospe avx512_vbmi2 gfn vaes vpclmulqdq avx512_vnm avx512_bitalg
avx512 vpoptndq la57 rdpid overflow_recov succor smca fsrm 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: 256 MiB (8 instances)

NUMA node(s): 1  
NUMA node0 CPU(s): 0-15

Vulnerability Itlb multihit: Not affected  
Vulnerability L1tft: 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/swaps barriers and _user pointer sanitization  
Vulnerability Spectre v2: Mitigation; Retpolines, IBPB conditional, IBRS_FW, STIBP disabled, RSB filling, PBRSB-eIBRS Not affected  
Vulnerability Srbd: Not affected  
Vulnerability Txs async abort: Not affected

---

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

(Continued on next page)
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A+ Server 2115GT-HNTF (H13SST-G, AMD EPYC 9174F)

SPEC Cup®2017 Floating Point Speed Result

SPECspeed®2017_fp_base = 165
SPECspeed®2017_fp_peak = 167

CPU2017 License: 001176
Test Date: Feb-2023
Test Sponsor: Supermicro
Hardware Availability: Nov-2022
Tested by: Supermicro
Software Availability: Jan-2023

Platform Notes (Continued)

available: 1 nodes (0)
node 0 cpus: 0-15
node 0 size: 1160406 MB
node 0 free: 1158891 MB
node distances:
node 0
  0: 10

9. /proc/meminfo
   MemTotal: 1188256068 kB

10. who -r
    run-level 3 Feb 9 06:54

11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.6)
    Default Target Status
    multi-user 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 rayslog
    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 trousers
    indirect uidd
    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

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Platform Notes (Continued)

BOOT_IMAGE=/boot/vmlinuz-5.15.0-58-generic
root=UUID=d0cc852e-9857-40c1-b230-5999cbe027bc
ro

15. cpupower frequency-info
   analyzing CPU 0:
   current policy: frequency should be within 400 MHz and 4.41 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: 3
   Pstate-P0:  4100MHz

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
    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+madvice madvise never
    enabled [always] madvice never
    hpage_pmd_size 2097152
    shmem_enabled always within_size advise [never] deny force

(Continued on next page)
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SPECspeed®2017_fp_base = 165
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Platform Notes (Continued)

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 22.04.1 LTS

20. Disk information
   SPEC is set to: /home/cpu2017
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      ext4  1.8T   59G  1.6T   4% /

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:
    12x Micron Technology MTC40F204WS1RC48BB2 96 GB 2 rank 4800

23. BIOS
    (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:    American Megatrends International, LLC.
    BIOS Version:   1.1
    BIOS Date:      01/17/2023
    BIOS Revision:  5.27
**Supermicro**  
A+ Server 2115GT-HNTF  
(H13SST-G, AMD EPYC 9174F)

<table>
<thead>
<tr>
<th>SPECspeed®2017_fp_base</th>
<th>165</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_fp_peak</td>
<td>167</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Test Date:** Feb-2023  
**Hardware Availability:** Nov-2022  
**Tested by:** Supermicro  
**Software Availability:** Jan-2023

**Compiler Version Notes**

<table>
<thead>
<tr>
<th>C</th>
<th>619.lbm_s(base, peak) 638.imagick_s(base, peak) 644.nab_s(base, peak)</th>
</tr>
</thead>
</table>

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)  
Target: x86_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

<table>
<thead>
<tr>
<th>C++, C, Fortran</th>
<th>607.cactuBSSN_s(base, peak)</th>
</tr>
</thead>
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<table>
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<tr>
<th>Fortran</th>
<th>603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak) 654.roms_s(base, peak)</th>
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<table>
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<tr>
<th>Fortran, C</th>
<th>621.wrf_s(base, peak) 627.cam4_s(base, peak) 628.pop2_s(base, peak)</th>
</tr>
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AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)  
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(Continued on next page)
Supermicro
A+ Server 2115GT-HNTF
(H13SST-G, AMD EPYC 9174F)

SPECspeed®2017_fp_base = 165
SPECspeed®2017_fp_peak = 167

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

Test Date: Feb-2023
Hardware Availability: Nov-2022
Software Availability: Jan-2023

Compiler Version Notes (Continued)

LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on
LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

Base Compiler Invocation

C benchmarks:
clang

Fortran benchmarks:
flang

Benchmarks using both Fortran and C:
flang clang

Benchmarks using Fortran, C, and C++:
clang++ clang flang

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
627.cam4_s: -DSPEC_CASE_FLAG -DSPEC_LP64
628.pop2_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64
SPEC CPU®2017 Floating Point Speed Result

Supermicro
A+ Server 2115GT-HNTF
(H13SST-G, AMD EPYC 9174F)

SPECspeed®2017_fp_base = 165
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CPU2017 License: 001176
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Base Optimization Flags

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 -fstruct-layout=7
- -mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
- -fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
- -DSPEC_OPENMP -zopt -fopenmp=libomp -lomp -lamdlibm -lamdalloc
- -lflang

Fortran benchmarks:
- -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
- -Wl,-mllvm -Wl,-reduce-array-computations=3
- -Wl,-mllvm -Wl,-enable-X86-prefetching -DSPEC_OPENMP -O3 -march=znver4
- -fveclib=AMDLIBM -ffast-math -fopenmp -flto -Mrecursive
- -funroll-loops -mllvm -lsr-in-nested-loop
- -mllvm -reduce-array-computations=3 -zopt -fopenmp=libomp -lomp
- -lamdlibm -lamdalloc -lflang

Benchmarks using both Fortran and C:
- -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
- -Wl,-mllvm -Wl,-reduce-array-computations=3
- -Wl,-mllvm -Wl,-enable-X86-prefetching -O3 -march=znver4
- -fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
- -mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
- -fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
- -DSPEC_OPENMP -zopt -Mrecursive -funroll-loops
- -mllvm -lsr-in-nested-loop -fopenmp=libomp -lomp -lamdlibm -lamdalloc
- -lflang

Benchmarks using Fortran, C, and C++:
- -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
- -Wl,-mllvm -Wl,-reduce-array-computations=3
- -Wl,-mllvm -Wl,-x86-use-vzeroupper=false -O3 -march=znver4
- -fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
- -mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
- -fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
- -DSPEC_OPENMP -zopt -mllvm -unroll-threshold=100 -finline-aggressive
- -mllvm -loop-unswitch-threshold=200000 -Mrecursive -funroll-loops
- -mllvm -lsr-in-nested-loop -fopenmp=libomp -lomp -lamdlibm -lamdalloc
- -lflang
Supermicro
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SPECspeed®2017_fp_base = 165
SPECspeed®2017_fp_peak = 167

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro
Test Date: Feb-2023
Hardware Availability: Nov-2022
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Base Other Flags

C benchmarks:
- Wno-return-type -Wno-unused-command-line-argument

Fortran benchmarks:
- Wno-unused-command-line-argument

Benchmarks using both Fortran and C:
- Wno-return-type -Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:
- Wno-return-type -Wno-unused-command-line-argument

Peak Compiler Invocation

C benchmarks:
clang

Fortran benchmarks:
flang

Benchmarks using both Fortran and C:
flang clang

Benchmarks using Fortran, C, and C++:
clang++ clang flang

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

619.lbm_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-6lvm -Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-ffast-math -fopenmp -flto -fstructure-layout=9 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000

(Continued on next page)
Peak Optimization Flags (Continued)

619.lbm_s (continued):
-mlir -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

638.imagick_s: basepeak = yes

644.nab_s: basepeak = yes

Fortran benchmarks:

603.bwaves_s: -m64 -Wl,-mlir -Wl, -align-all-nofallthru-blocks=6
-W1, -mlir -Wl, -reduce-array-computations=3
-W1, -mlir -Wl, -enable-X86-prefetching -DSPEC_OPENMP
-Ofast -march=znver4 -fveclib=AMDLIBM -ffast-math
-fopenmp -Mrecursive -mlir -reduce-array-computations=3
-fvector-transform -fscalar-transform -fopenmp=libomp
-lomp -lamdlibm -lamdalloc -lflang

649.fotonik3d_s: basepeak = yes

654.roms_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf_s: -m64 -Wl,-mlir -Wl,-align-all-nofallthru-blocks=6
-W1, -mlir -Wl, -reduce-array-computations=3
-W1, -mlir -Wl, -enable-X86-prefetching -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=9 -mlir -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mlir -inline-threshold=1000
-mlir -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-03 -Mrecursive -funroll-loops -mlir -lsr-in-nested-loop
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

627.cam4_s: basepeak = yes

628.pop2_s: -m64 -Wl,-mlir -Wl, -align-all-nofallthru-blocks=6
-W1, -mlir -Wl, -reduce-array-computations=3
-W1, -mlir -Wl, -enable-X86-prefetching -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=9 -mlir -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mlir -inline-threshold=1000
-mlir -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-03 -Mrecursive -fvector-transform -fscalar-transform
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Peak Optimization Flags (Continued)

628.pop2_s (continued):
-lopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

Benchmarks using Fortran, C, and C++:
607.cactuBSSN_s: basepeak = yes

Peak Other Flags

C benchmarks:
-Wno-return-type -Wno-unused-command-line-argument

Fortran benchmarks:
-Wno-unused-command-line-argument

Benchmarks using both Fortran and C:
-Wno-return-type -Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:
-Wno-return-type -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.html
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Genoa-revB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/aocc400-flags.xml
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Genoa-revB.xml

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

Tested with SPEC CPU®2017 v1.1.9 on 2023-02-09 01:56:47-0500.
Report generated on 2023-03-29 00:42:54 by CPU2017 PDF formatter v6442.
Originally published on 2023-03-28.