SPEC CPU®2017 Floating Point Rate Result

Supermicro

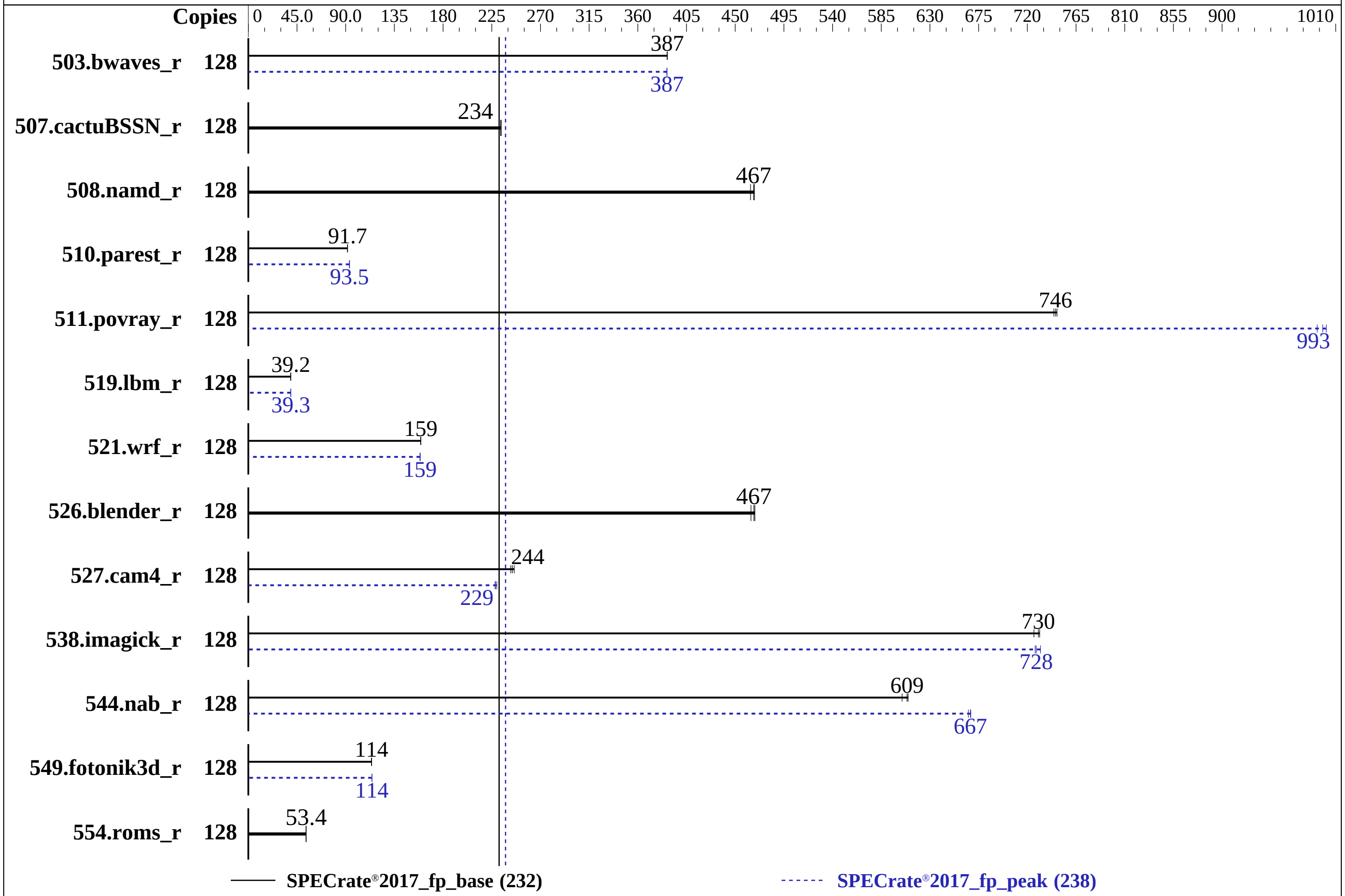
SuperServer ARS-210M-NR
(R12SPD-A , Ampere Altra Max M128-30)

SPECrate®2017_fp_base = 232

SPECrate®2017_fp_peak = 238

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

Test Date: Nov-2022
Hardware Availability: Nov-2022
Software Availability: May-2022



Hardware

CPU Name:	Ampere Altra Max M128-30
Max MHz:	3300
Nominal:	3000
Enabled:	128 cores, 1 chip
Orderable:	1 chip
Cache L1:	64 KB I + 64 KB D on chip per core
L2:	1 MB I+D on chip per core
L3:	32 MB I+D on chip per chip
Other:	None
Memory:	512 GB (8 x 64 GB 2Rx4 PC4-3200AA-R)
Storage:	1 x 4 TB NVMe SSD
Other:	None

Software

OS:	CentOS Stream release 8 Kernel 4.18.0-383.el8.aarch64
Compiler:	C/C++/Fortran: Version 10.2.1 of Ampere GCC GNU Compiler Collection
Parallel:	No
Firmware:	Version 1.1 released Oct-2022
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other:	Jemalloc memory allocator library v5.2.1
Power Management:	BIOS and OS set to prefer performance at the cost of additional power usage.

SPEC CPU®2017 Floating Point Rate Result

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	128	3316	387	3315	387	**3315**	**387**	128	3317	387	**3317**	**387**	3317	387
507.cactuBSSN_r	128	695	233	**694**	**234**	694	234	128	695	233	**694**	**234**	694	234
508.namd_r	128	**260**	**467**	262	464	260	468	128	**260**	**467**	262	464	260	468
510.parest_r	128	3649	91.8	**3650**	**91.7**	3651	91.7	128	**3580**	**93.5**	3584	93.4	3579	93.6
511.povray_r	128	**401**	**746**	401	745	400	747	128	**301**	**993**	303	988	300	996
519.lbm_r	128	3437	39.3	**3438**	**39.2**	3441	39.2	128	3431	39.3	**3431**	**39.3**	3430	39.3
521.wrf_r	128	1799	159	1798	159	**1798**	**159**	128	1805	159	**1805**	**159**	1808	159
526.blender_r	128	420	465	**417**	**467**	416	468	128	420	465	**417**	**467**	416	468
527.cam4_r	128	911	246	**917**	**244**	923	243	128	**980**	**229**	975	230	982	228
538.imagick_r	128	438	726	435	731	**436**	**730**	128	438	727	435	732	**437**	**728**
544.nab_r	128	357	604	**354**	**609**	353	610	128	324	666	323	668	**323**	**667**
549.fotonik3d_r	128	4380	114	4376	114	**4379**	**114**	128	4368	114	4369	114	**4368**	**114**
554.roms_r	128	**3806**	**53.4**	3806	53.4	3804	53.5	128	**3806**	**53.4**	3806	53.4	3804	53.5

SPECrate®2017_fp_base = 232

SPECrate®2017_fp_peak = 238

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
```

Operating System Notes

```
'ulimit -s unlimited' was used to set environment stack size
Set dirty_ratio=8 to limit dirty cache to 8% of memory
i.e. echo 8 | sudo tee /proc/sys/vm/dirty_ratio
Set swappiness=1 to swap only if necessary
i.e. echo 1 | sudo tee /proc/sys/vm/swappiness
Set zone_reclaim_mode=1 to free local node memory and avoid remote memory
i.e. echo 1 | sudo tee /proc/sys/vm/zone_reclaim_mode
Set drop_caches=3 to reset caches before invoking runcpu
i.e. echo 3 | sudo tee /proc/sys/vm/drop_caches
Set numa_balancing=0 to disable automatic numa balancing
i.e. echo 0 | sudo tee /proc/sys/kernel/numa_balancing
Switch off all ktune and tuned settings
i.e. sudo tuned-adm off
Transparent huge pages set to 'never'
i.e. sudo bash -c "echo never > /sys/kernel/mm/transparent_hugepage/enabled"

runcpu command invoked through numactl i.e.
numactl --interleave=0-3 runcpu <etc>
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
     "/home/amptest/ampere_spec2017/jemalloc/install/lib:/home/amptest/ampere
     _spec2017/gcc/install/lib64/:/home/amptest/ampere_spec2017/gcc/install/l
     ib/:/home/cpu2017-0621/gcc/install/lib64:/home/cpu2017-0621/jemalloc/ins
     tall/lib:"
```

General Notes

```
 Binaries were compiled on a system with the following configuration
 Ampere Altra Q80-33 2P CPU + 512GB Memory
 using CentOS 8.2 + glibc 2.28 + binutil 2.30

 Ampere GCC 10.2.1 is available via
 https://github.com/AmpereComputing/ampere-gcc/releases

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.
NA: 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 v5.2.1 is available via
 https://github.com/jemalloc/jemalloc/releases/download/5.2.1/jemalloc-5.2.1.tar.bz2
 Build aarch64 version with configure options
 --prefix=/home/amptest/jemalloc/install --with-lg-quantum=3
```

Platform Notes

```
BIOS Settings:
Enable ACPI Auto Configuration = Disabled
Enable CPPC = Disabled
Enable LPI = Disabled
ANC mode = Quadrant

 Sysinfo program /home/cpu2017-0621/spec2017/bin/sysinfo
 Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
 running on 135-170-65.engtw Mon Nov 28 21:30:05 2022

 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
 *
```


(Continued on next page)

Platform Notes (Continued)

```
* Did not identify cpu model.  If you would
* like to write your own sysinfo program, see
* www.spec.org/cpu2017/config.html#sysinfo
*
*
* 0 "physical id" tags found.  Perhaps this is an older system,
* or a virtualized system.  Not attempting to guess how to
* count chips/cores for this system.
*
      128 "processors"
   cores, siblings (Caution: counting these is hw and system dependent. The following
   excerpts from /proc/cpuinfo might not be reliable.  Use with caution.)

From lscpu from util-linux 2.32.1:
     Architecture:        aarch64
     Byte Order:          Little Endian
     CPU(s):              128
     On-line CPU(s) list: 0-127
     Thread(s) per core:  1
     Core(s) per socket:  128
     Socket(s):           1
     NUMA node(s):        4
     Vendor ID:           ARM
     BIOS Vendor ID:      Ampere(R)
     Model:               1
     Model name:          Neoverse-N1
     BIOS Model name:     Ampere(R) Altra(R) Max Processor
     Stepping:            r3p1
     BogoMIPS:            50.00
     L1d cache:           64K
     L1i cache:           64K
     L2 cache:            1024K
     NUMA node0 CPU(s):   0-31
     NUMA node1 CPU(s):   32-63
     NUMA node2 CPU(s):   64-95
     NUMA node3 CPU(s):   96-127
     Flags:              fp asimd evtstrm aes pmull sha1 sha2 crc32 atomics fphp asimdhp
     cpuid asimdrdm lrcpc dcpop asimddp ssbs

From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
  available: 4 nodes (0-3)
  node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
  28 29 30 31
  node 0 size: 129973 MB
  node 0 free: 112351 MB
  node 1 cpus: 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56
```

(Continued on next page)

Platform Notes (Continued)

```
    57 58 59 60 61 62 63
    node 1 size: 130923 MB
    node 1 free: 115972 MB
    node 2 cpus: 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
    89 90 91 92 93 94 95
    node 2 size: 130923 MB
    node 2 free: 116782 MB
    node 3 cpus: 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114
    115 116 117 118 119 120 121 122 123 124 125 126 127
    node 3 size: 130811 MB
    node 3 free: 116562 MB
    node distances:
    node   0   1   2   3
      0:  10  11  11  12
      1:  11  10  12  11
      2:  11  12  10  11
      3:  12  11  11  10

  From /proc/meminfo
     MemTotal:       535176320 kB
     HugePages_Total:       0
     Hugepagesize:     524288 kB

  /sbin/tuned-adm active
      No current active profile.

  From /etc/*release* /etc/*version*
     centos-release: CentOS Stream release 8
     os-release:
        NAME="CentOS Stream"
        VERSION="8"
        ID="centos"
        ID_LIKE="rhel fedora"
        VERSION_ID="8"
        PLATFORM_ID="platform:el8"
        PRETTY_NAME="CentOS Stream 8"
        ANSI_COLOR="0;31"
     redhat-release: CentOS Stream release 8
     system-release: CentOS Stream release 8
     system-release-cpe: cpe:/o:centos:centos:8

  uname -a:
     Linux 135-170-65.engtw 4.18.0-383.el8.aarch64 #1 SMP Wed Apr 20 15:39:57 UTC 2022
     aarch64 aarch64 aarch64 GNU/Linux

  Kernel self-reported vulnerability status:
```

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Platform Notes (Continued)

```
CVE-2018-12207 (iTLB Multihit):                        Not affected
CVE-2018-3620 (L1 Terminal Fault):                     Not affected
Microarchitectural Data Sampling:                      Not affected
CVE-2017-5754 (Meltdown):                              Not affected
CVE-2018-3639 (Speculative Store Bypass):              Mitigation: Speculative Store
                                                       Bypass disabled via prctl
CVE-2017-5753 (Spectre variant 1):                     Mitigation: __user pointer
                                                       sanitization
CVE-2017-5715 (Spectre variant 2):                     Not affected
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort):               Not affected

run-level 3 Nov 28 09:32

SPEC is set to: /home/cpu2017-0621/spec2017
   Filesystem          Type  Size  Used Avail Use% Mounted on
   /dev/mapper/cl-home xfs   3.5T  279G  3.2T   8% /home

From /sys/devices/virtual/dmi/id
    Vendor:         Supermicro Corporation
    Product:        R12SPD ..........
    Product Family: Altra Max
    Serial:         ............

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:
    8x Samsung M393A8G 64 GB 2 rank 3200

BIOS:
   BIOS Vendor:       Ampere(R)
   BIOS Version:      1.1
   BIOS Date:         10/31/2022
   BIOS Revision:     5.15

(End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
C               | 519.lbm_r(base, peak) 538.imagick_r(base, peak)
                | 544.nab_r(base, peak)
------------------------------------------------------------------------------
gcc (Ampere Computing Build 11923 20201215) 10.2.1 20201216
```

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Compiler Version Notes (Continued)

```
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warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
C++              | 508.namd_r(base, peak) 510.parest_r(base, peak)
------------------------------------------------------------------------------
g++ (Ampere Computing Build 11923 20201215) 10.2.1 20201216
Copyright (C) 2020 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
C++, C           | 511.povray_r(base, peak) 526.blender_r(base, peak)
------------------------------------------------------------------------------
g++ (Ampere Computing Build 11923 20201215) 10.2.1 20201216
Copyright (C) 2020 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
gcc (Ampere Computing Build 11923 20201215) 10.2.1 20201216
Copyright (C) 2020 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
C++, C, Fortran | 507.cactuBSSN_r(base, peak)
------------------------------------------------------------------------------
g++ (Ampere Computing Build 11923 20201215) 10.2.1 20201216
Copyright (C) 2020 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
gcc (Ampere Computing Build 11923 20201215) 10.2.1 20201216
Copyright (C) 2020 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
GNU Fortran (Ampere Computing Build 11923 20201215) 10.2.1 20201216
Copyright (C) 2020 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
Fortran          | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak)
                 | 554.roms_r(base, peak)
```

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Compiler Version Notes (Continued)

```
------------------------------------------------------------------------------
GNU Fortran (Ampere Computing Build 11923 20201215) 10.2.1 20201216
Copyright (C) 2020 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------

==============================================================================
Fortran, C      | 521.wrf_r(base, peak) 527.cam4_r(base, peak)
------------------------------------------------------------------------------
GNU Fortran (Ampere Computing Build 11923 20201215) 10.2.1 20201216
Copyright (C) 2020 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
gcc (Ampere Computing Build 11923 20201215) 10.2.1 20201216
Copyright (C) 2020 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
gcc

C++ benchmarks:
g++

Fortran benchmarks:
gfortran

Benchmarks using both Fortran and C:
gfortran gcc

Benchmarks using both C and C++:
g++ gcc

Benchmarks using Fortran, C, and C++:
g++ gcc gfortran

Base Portability Flags

503.bwaves_r: -DSPEC_LP64

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Base Portability Flags (Continued)

507.cactuBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64
510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.lbm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_CASE_FLAG -fconvert=big-endian -DSPEC_LP64
526.blender_r: -funsigned-char -DSPEC_LINUX -DSPEC_LP64
527.cam4_r: -DSPEC_CASE_FLAG -DSPEC_LP64
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-mabi=lp64 -std=c99 -L/home/amptest/ampere_spec2017/gcc/install/lib64
-L/home/amptest/ampere_spec2017/gcc/install/lib
-L/home/amptest/ampere_spec2017/jemalloc/install/lib -g -Ofast
-mcpu=neoverse-n1 -flto -fno-strict-aliasing -ljemalloc

C++ benchmarks:
-mabi=lp64 -std=c++03 -L/home/amptest/ampere_spec2017/gcc/install/lib64
-L/home/amptest/ampere_spec2017/gcc/install/lib
-L/home/amptest/ampere_spec2017/jemalloc/install/lib -g -Ofast
-mcpu=neoverse-n1 -flto -ljemalloc

Fortran benchmarks:
-mabi=lp64 -L/home/amptest/ampere_spec2017/gcc/install/lib64
-L/home/amptest/ampere_spec2017/gcc/install/lib
-L/home/amptest/ampere_spec2017/jemalloc/install/lib -g -Ofast
-mcpu=neoverse-n1 -flto -fno-stack-arrays -ljemalloc

Benchmarks using both Fortran and C:
-mabi=lp64 -std=c99 -L/home/amptest/ampere_spec2017/gcc/install/lib64
-L/home/amptest/ampere_spec2017/gcc/install/lib
-L/home/amptest/ampere_spec2017/jemalloc/install/lib -g -Ofast
-mcpu=neoverse-n1 -flto -fno-stack-arrays -fno-strict-aliasing
-ljemalloc

Benchmarks using both C and C++:
-mabi=lp64 -std=c++03 -std=c99
-L/home/amptest/ampere_spec2017/gcc/install/lib64
-L/home/amptest/ampere_spec2017/gcc/install/lib

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Base Optimization Flags (Continued)

Benchmarks using both C and C++ (continued):
-L/home/amptest/ampere_spec2017/jemalloc/install/lib -g -Ofast
-mcpu=neoverse-n1 -flto -fno-strict-aliasing -ljemalloc

Benchmarks using Fortran, C, and C++:
-mabi=lp64 -std=c++03 -std=c99
-L/home/amptest/ampere_spec2017/gcc/install/lib64
-L/home/amptest/ampere_spec2017/gcc/install/lib
-L/home/amptest/ampere_spec2017/jemalloc/install/lib -g -Ofast
-mcpu=neoverse-n1 -flto -fno-stack-arrays -fno-strict-aliasing
-ljemalloc

Base Other Flags

C benchmarks:
-Wl,-Map,mapfile

C++ benchmarks:
-Wl,-Map,mapfile

Fortran benchmarks:
-fallow-argument-mismatch -Wl,-Map,mapfile

Benchmarks using both Fortran and C:
-fallow-argument-mismatch -Wl,-Map,mapfile

Benchmarks using both C and C++:
-Wl,-Map,mapfile

Benchmarks using Fortran, C, and C++:
-fallow-argument-mismatch -Wl,-Map,mapfile

Peak Compiler Invocation

C benchmarks:
gcc

C++ benchmarks:
g++

Fortran benchmarks:
gfortran

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Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
`gfortran gcc`

Benchmarks using both C and C++:
`g++ gcc`

Benchmarks using Fortran, C, and C++:
`g++ gcc gfortran`

Peak Portability Flags

`Same as Base Portability Flags`

Peak Optimization Flags

C benchmarks:
```
-mabi=lp64 -std=c99 -L/home/amptest/ampere_spec2017/gcc/install/lib64
-L/home/amptest/ampere_spec2017/gcc/install/lib
-L/home/amptest/ampere_spec2017/jemalloc/install/lib -fprofile-generate
-fprofile-use -g -Ofast -mcpu=neoverse-n1 -funroll-loops -flto=32
--param early-inlining-insns=96 --param max-inline-insns-auto=64
--param inline-unit-growth=96 -ljemalloc
```

C++ benchmarks:

508.namd_r: `basepeak = yes`

510.parest_r:
```
-mabi=lp64 -std=c++03
-L/home/amptest/ampere_spec2017/gcc/install/lib64
-L/home/amptest/ampere_spec2017/gcc/install/lib
-L/home/amptest/ampere_spec2017/jemalloc/install/lib
-fprofile-generate -fprofile-use -g -Ofast
-mcpu=neoverse-n1 -funroll-loops -flto=32
--param early-inlining-insns=256
--param max-inline-insns-auto=128
--param inline-unit-growth=256 -ffinite-loops -ljemalloc
```

Fortran benchmarks:

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Peak Optimization Flags (Continued)

503.bwaves_r: -mabi=lp64
-L/home/amptest/ampere_spec2017/gcc/install/lib64
-L/home/amptest/ampere_spec2017/gcc/install/lib
-L/home/amptest/ampere_spec2017/jemalloc/install/lib
-fprofile-generate -fprofile-use -g -Ofast
-mcpu=neoverse-n1 -funroll-loops -flto=32
-fno-stack-arrays -ljemalloc

549.fotonik3d_r: Same as 503.bwaves_r

554.roms_r: basepeak = yes

Benchmarks using both Fortran and C:

521.wrf_r: -mabi=lp64 -std=c99
-L/home/amptest/ampere_spec2017/gcc/install/lib64
-L/home/amptest/ampere_spec2017/gcc/install/lib
-L/home/amptest/ampere_spec2017/jemalloc/install/lib
-fprofile-generate -fprofile-use -g -Ofast
-mcpu=neoverse-n1 -funroll-loops -flto=32
--param early-inlining-insns=96
--param max-inline-insns-auto=64
--param inline-unit-growth=96 -fno-stack-arrays -ljemalloc

527.cam4_r: -mabi=lp64 -std=c99
-L/home/amptest/ampere_spec2017/gcc/install/lib64
-L/home/amptest/ampere_spec2017/gcc/install/lib
-L/home/amptest/ampere_spec2017/jemalloc/install/lib
-fprofile-generate -fprofile-use -g -Ofast
-mcpu=neoverse-n1 -funroll-loops -flto=32
--param early-inlining-insns=96
--param max-inline-insns-auto=64
--param inline-unit-growth=96 -fno-stack-arrays
-fno-strict-aliasing -ljemalloc

Benchmarks using both C and C++:

511.povray_r: -mabi=lp64 -std=c++03 -std=c99
-L/home/amptest/ampere_spec2017/gcc/install/lib64
-L/home/amptest/ampere_spec2017/gcc/install/lib
-L/home/amptest/ampere_spec2017/jemalloc/install/lib
-fprofile-generate -fprofile-use -g -Ofast
-mcpu=neoverse-n1 -funroll-loops -flto=32
--param early-inlining-insns=96
--param max-inline-insns-auto=64
--param inline-unit-growth=96

(Continued on next page)

Peak Optimization Flags (Continued)

511.povray_r (continued):
`--param early-inlining-insns=256`
`--param max-inline-insns-auto=128`
`--param inline-unit-growth=256 -ffinite-loops`
`-fno-strict-aliasing -ljemalloc`

526.blender_r: `basepeak = yes`

Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: `basepeak = yes`

Peak Other Flags

C benchmarks:
`-w -Wl,-Map,mapfile`

C++ benchmarks:
`-Wl,-Map,mapfile`

Fortran benchmarks (except as noted below):
`-Wl,-Map,mapfile`

554.roms_r: `-fallow-argument-mismatch -Wl,-Map,mapfile`

Benchmarks using both Fortran and C:

521.wrf_r: `-w -fallow-argument-mismatch -Wl,-Map,mapfile`

527.cam4_r: `-fallow-argument-mismatch -Wl,-Map,mapfile`

Benchmarks using both C and C++:
`-Wl,-Map,mapfile`

Benchmarks using Fortran, C, and C++:
`-fallow-argument-mismatch -Wl,-Map,mapfile`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/gcc.2021-07-21.html
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Ampere-revD.html

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

http://www.spec.org/cpu2017/flags/gcc.2021-07-21.xml
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Ampere-revD.xml

Tested with SPEC CPU®2017 v1.1.8 on 2022-11-28 08:30:05-0500.
Report generated on 2022-12-20 15:10:19 by CPU2017 PS formatter v6442.
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