SPEC CPU®2017 Floating Point Rate Result

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Fujitsu
(Test Sponsor: Fujitsu)

PRIMERGY RX2450 M1, AMD EPYC 7702, 2.00 GHz

$SPECrate®2017\_fp\_base = \quad 491$

$SPECrate®2017\_fp\_peak = Not Run$

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Mar-2021
Hardware Availability: Apr-2021
Software Availability: Jul-2020

Benchmark	Copies	Result
503.bwaves_r	128	668
507.cactuBSSN_r	128	656
508.namd_r	128	436
510.parest_r	128	435
511.povray_r	128	679
519.lbm_r	128	161
521.wrf_r	128	451
526.blender_r	128	631
527.cam4_r	128	584
538.imagick_r	128	1540
544.nab_r	128	842
549.fotonik3d_r	128	225
554.roms_r	128	218

SPECrate®2017_fp_base (491)

Hardware

CPU Name: AMD EPYC 7702
Max MHz: 3350
Nominal: 2000
Enabled: 128 cores, 2 chips
Orderable: 2 chips
Cache L1: 32 KB I + 32 KB D on chip per core
  L2: 512 KB I+D on chip per core
  L3: 256 MB I+D on chip per chip, 16 MB shared / 4 cores
Other: None
Memory: 2 TB (32 x 64 GB 4Rx4 PC4-3200V-L)
Storage: 1 x PCIe SSD, 2TB
Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP2 (x86_64) kernel version 5.3.18-22-default
Compiler: C/C++/Fortran: Version 2.0.0 of AOCC
Parallel: No
Firmware: Fujitsu BIOS Version 1.2.V1 Released Apr-2021 tested as Dec-2020
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: jemalloc: jemalloc memory allocator library v5.2.0
Power Management: BIOS set to prefer performance at the cost of additional power usage

Standard Performance Evaluation Corporation (info@spec.org)
https://www.spec.org/

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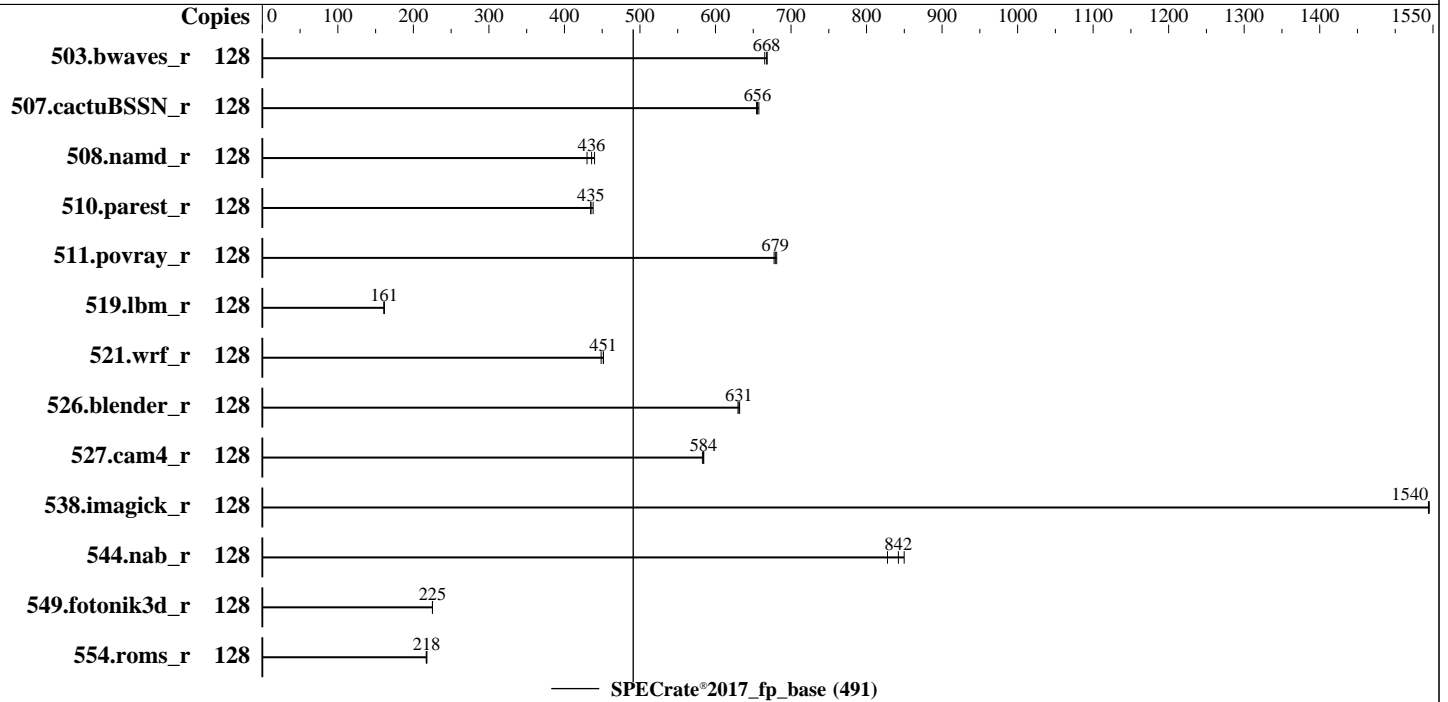
SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19	**Test Date:** Mar-2021
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Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	128	1930	665	1920	668	**1922**	**668**							
507.cactuBSSN_r	128	248	654	**247**	**656**	246	657							
508.namd_r	128	283	430	276	440	**279**	**436**							
510.parest_r	128	770	435	765	438	**769**	**435**							
511.povray_r	128	441	678	**440**	**679**	439	681							
519.lbm_r	128	838	161	**836**	**161**	836	161							
521.wrf_r	128	639	449	**635**	**451**	635	452							
526.blender_r	128	**309**	**631**	308	632	310	630							
527.cam4_r	128	384	583	383	584	**383**	**584**							
538.imagick_r	128	206	1540	**206**	**1540**	206	1550							
544.nab_r	128	**256**	**842**	253	850	260	828							
549.fotonik3d_r	128	2214	225	2215	225	**2214**	**225**							
554.roms_r	128	**935**	**218**	934	218	937	217							

SPECrate®2017_fp_base = **491**

SPECrate®2017_fp_peak = **Not Run**

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
'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>

Set dirty_ratio=8 to limit dirty cache to 8% of memory
Set swappiness=1 to swap only if necessary
Set zone_reclaim_mode=1 to free local node memory and avoid remote memory
sync then drop_caches=3 to reset caches before invoking runcpu
```

(Continued on next page)

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Operating System Notes (Continued)

```
dirty_ratio, swappiness, zone_reclaim_mode and drop_caches were
all set using privileged echo (e.g. echo 1 > /proc/sys/vm/swappiness).

Transparent huge pages set to 'always' for this run (OS default)
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
    "/home/Benchmark/speccpu/amd_rate_aocc200_rome_C_lib/64;/home/Benchmark/
    speccpu/amd_rate_aocc200_rome_C_lib/32:"
MALLOC_CONF = "retain:true"
```

General Notes

```
Binaries were compiled on a system with 2x AMD EPYC 7601 CPU + 512GB Memory using Fedora 26

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.

jemalloc: configured and built with GCC v9.1.0 in Ubuntu 19.04 with -O3 -znver2 -flto
jemalloc 5.2.0 is available here:
https://github.com/jemalloc/jemalloc/releases/download/5.2.0/jemalloc-5.2.0.tar.bz2
```

Platform Notes

```
 BIOS configuration:
 cTDP = 200
 Determinism Slider = Power
 Package Power Limit = 200
 SVM Mode = Disabled
 NUMA Nodes Per Socket = NPS4
 L1 Stream HW Prefetcher = Disabled
 L2 Stream HW Prefetcher = Disabled
 DRAM Scrub Time = Disabled
 SMT Control = Disabled

 Sysinfo program /home/Benchmark/speccpu/bin/sysinfo
 Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
```

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Platform Notes (Continued)

```
running on localhost Tue Mar 30 04:22:56 2021

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
   model name : AMD EPYC 7702 64-Core Processor
      2  "physical id"s (chips)
      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.)
      cpu cores : 64
      siblings  : 64
      physical 0: cores 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 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 57 58 59 60 61 62 63
      physical 1: cores 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 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 57 58 59 60 61 62 63

From lscpu:
      Architecture:        x86_64
      CPU op-mode(s):      32-bit, 64-bit
      Byte Order:          Little Endian
      Address sizes:       43 bits physical, 48 bits virtual
      CPU(s):              128
      On-line CPU(s) list: 0-127
      Thread(s) per core:  1
      Core(s) per socket:  64
      Socket(s):           2
      NUMA node(s):        8
      Vendor ID:           AuthenticAMD
      CPU family:          23
      Model:               49
      Model name:          AMD EPYC 7702 64-Core Processor
      Stepping:            0
      CPU MHz:             1799.546
      CPU max MHz:         2000.0000
      CPU min MHz:         1500.0000
      BogoMIPS:            3999.93
      Virtualization:      AMD-V
      L1d cache:           32K
      L1i cache:           32K
      L2 cache:            512K
      L3 cache:            16384K
      NUMA node0 CPU(s):   0-15
```

(Continued on next page)

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Platform Notes (Continued)

```
      NUMA node1 CPU(s):     16-31
      NUMA node2 CPU(s):     32-47
      NUMA node3 CPU(s):     48-63
      NUMA node4 CPU(s):     64-79
      NUMA node5 CPU(s):     80-95
      NUMA node6 CPU(s):     96-111
      NUMA node7 CPU(s):     112-127
      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 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 topoext perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb cat_l3
     cdp_l3 hw_pstate sme ssbd mba sev ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2 smep
     bmi2 cqm rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1 xsaves
     cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local clzero irperf xsaveerptr wbnoinvd
     arat npt lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists
     pausefilter pfthreshold avic v_vmsave_vmload vgif umip rdpid overflow_recov succor
     smca

 /proc/cpuinfo cache data
    cache size : 512 KB

 From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a
 physical chip.
   available: 8 nodes (0-7)
   node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
   node 0 size: 257773 MB
   node 0 free: 257375 MB
   node 1 cpus: 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
   node 1 size: 258041 MB
   node 1 free: 257799 MB
   node 2 cpus: 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
   node 2 size: 258041 MB
   node 2 free: 257783 MB
   node 3 cpus: 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
   node 3 size: 258029 MB
   node 3 free: 257795 MB
   node 4 cpus: 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79
   node 4 size: 258041 MB
   node 4 free: 257721 MB
   node 5 cpus: 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
   node 5 size: 258008 MB
   node 5 free: 257591 MB
   node 6 cpus: 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111
   node 6 size: 258041 MB
   node 6 free: 257778 MB
```

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Platform Notes (Continued)

```
   node 7 cpus: 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127
   node 7 size: 257801 MB
   node 7 free: 257465 MB
   node distances:
   node   0   1   2   3   4   5   6   7
     0:  10  12  12  12  32  32  32  32
     1:  12  10  12  12  32  32  32  32
     2:  12  12  10  12  32  32  32  32
     3:  12  12  12  10  32  32  32  32
     4:  32  32  32  32  10  12  12  12
     5:  32  32  32  32  12  10  12  12
     6:  32  32  32  32  12  12  10  12
     7:  32  32  32  32  12  12  12  10

 From /proc/meminfo
    MemTotal:       2113311776 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

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

 From /etc/*release* /etc/*version*
    os-release:
       NAME="SLES"
       VERSION="15-SP2"
       VERSION_ID="15.2"
       PRETTY_NAME="SUSE Linux Enterprise Server 15 SP2"
       ID="sles"
       ID_LIKE="suse"
       ANSI_COLOR="0;32"
       CPE_NAME="cpe:/o:suse:sles:15:sp2"

 uname -a:
    Linux localhost 5.3.18-22-default #1 SMP Wed Jun 3 12:16:43 UTC 2020
    (720aeba/lp-1a956f1) x86_64 x86_64 x86_64 GNU/Linux

 Kernel self-reported vulnerability status:

 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 and
                                           seccomp
 CVE-2017-5753 (Spectre variant 1):        Mitigation: usercopy/swapgs
```

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Platform Notes (Continued)

```
                                                barriers and __user pointer
                                                sanitization
  CVE-2017-5715 (Spectre variant 2):            Mitigation: Full AMD retpoline,
                                           IBPB: conditional, IBRS_FW, STIBP:
                                                disabled, RSB filling
  CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
  CVE-2019-11135 (TSX Asynchronous Abort):              Not affected


  run-level 3 Mar 30 04:21


  SPEC is set to: /home/Benchmark/speccpu
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/nvme1n1p3 xfs   1.3T   16G  1.3T   2% /home


  From /sys/devices/virtual/dmi/id
     Vendor:          FUJITSU
     Product:         PRIMERGY RX2450 M1
     Serial:          MACUxxxxxx


  Additional information from dmidecode 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:
      32x Samsung M386A8K40DM2-CWE 64 GB 4 rank 3200


  BIOS:
    BIOS Vendor:       American Megatrends Inc.
    BIOS Version:      1.2.V1
    BIOS Date:         12/22/2020
    BIOS Revision:     5.14


  (End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
C              | 519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)
------------------------------------------------------------------------------
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
------------------------------------------------------------------------------
```

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Compiler Version Notes (Continued)

```
==============================================================================
C++              | 508.namd_r(base) 510.parest_r(base)
------------------------------------------------------------------------------
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
------------------------------------------------------------------------------


==============================================================================
C++, C           | 511.povray_r(base) 526.blender_r(base)
------------------------------------------------------------------------------
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
------------------------------------------------------------------------------


==============================================================================
C++, C, Fortran | 507.cactuBSSN_r(base)
------------------------------------------------------------------------------
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
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  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
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Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
------------------------------------------------------------------------------


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

(Continued on next page)

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Compiler Version Notes (Continued)

```
--------------------------------------------------------------------------
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
--------------------------------------------------------------------------


==========================================================================
Fortran, C     | 521.wrf_r(base) 527.cam4_r(base)
--------------------------------------------------------------------------
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
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  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
--------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
```
clang
```

C++ benchmarks:
```
clang++
```

Fortran benchmarks:
```
flang
```

Benchmarks using both Fortran and C:
```
flang clang
```

Benchmarks using both C and C++:
```
clang++ clang
```

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

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Base Portability Flags

503.bwaves_r: `-DSPEC_LP64`
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 -Mbyteswapio -DSPEC_LP64`
526.blender_r: `-funsigned-char -D__BOOL_DEFINED -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:
```
-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math
-march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50
-fremap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
-flv-function-specialization -z muldefs -lmvec -lamdlibm -ljemalloc
-lflang
```

C++ benchmarks:
```
-std=c++98 -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-suppress-fmas -O3 -ffast-math -march=znver2
-mllvm -loop-unswitch-threshold=200000 -mllvm -vector-library=LIBMVEC
-mllvm -unroll-threshold=100 -flv-function-specialization
-mllvm -enable-partial-unswitch -z muldefs -lmvec -lamdlibm
-ljemalloc -lflang
```

Fortran benchmarks:
```
-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver2
-funroll-loops -Mrecursive -mllvm -vector-library=LIBMVEC -z muldefs
-Kieee -fno-finite-math-only -lmvec -lamdlibm -ljemalloc -lflang
```

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

Fujitsu
(Test Sponsor: Fujitsu)

PRIMERGY RX2450 M1, AMD EPYC 7702, 2.00 GHz

SPECrate®2017_fp_base = 491

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 19	**Test Date:** Mar-2021
Test Sponsor: Fujitsu	**Hardware Availability:** Apr-2021
Tested by: Fujitsu	**Software Availability:** Jul-2020

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
```
-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math
-march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50
-fremap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
-flv-function-specialization -funroll-loops -Mrecursive -z muldefs
-Kieee -fno-finite-math-only -lmvec -lamdlibm -ljemalloc -lflang
```

Benchmarks using both C and C++:
```
-std=c++98 -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-suppress-fmas -O3 -ffast-math -march=znver2
-fstruct-layout=3 -mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
-flv-function-specialization -mllvm -loop-unswitch-threshold=200000
-mllvm -unroll-threshold=100 -mllvm -enable-partial-unswitch -z muldefs
-lmvec -lamdlibm -ljemalloc -lflang
```

Benchmarks using Fortran, C, and C++:
```
-std=c++98 -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-suppress-fmas -O3 -ffast-math -march=znver2
-fstruct-layout=3 -mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
-flv-function-specialization -mllvm -loop-unswitch-threshold=200000
-mllvm -unroll-threshold=100 -mllvm -enable-partial-unswitch
-funroll-loops -Mrecursive -z muldefs -Kieee -fno-finite-math-only
-lmvec -lamdlibm -ljemalloc -lflang
```

The flags files that were used to format this result can be browsed at
  http://www.spec.org/cpu2017/flags/aocc200-flags-C4.html
  http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-ROME-RevE.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/aocc200-flags-C4.xml
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-ROME-RevE.xml

SPEC CPU®2017 Floating Point Rate Result

Fujitsu
(Test Sponsor: Fujitsu)

PRIMERGY RX2450 M1, AMD EPYC 7702, 2.00 GHz

SPECrate®2017_fp_base =   491

SPECrate®2017_fp_peak = Not Run

CPU2017 License:	19	**Test Date:**	Mar-2021
Test Sponsor:	Fujitsu	**Hardware Availability:**	Apr-2021
Tested by:	Fujitsu	**Software Availability:**	Jul-2020

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

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