SPEC® CPU2017 Floating Point Speed Result

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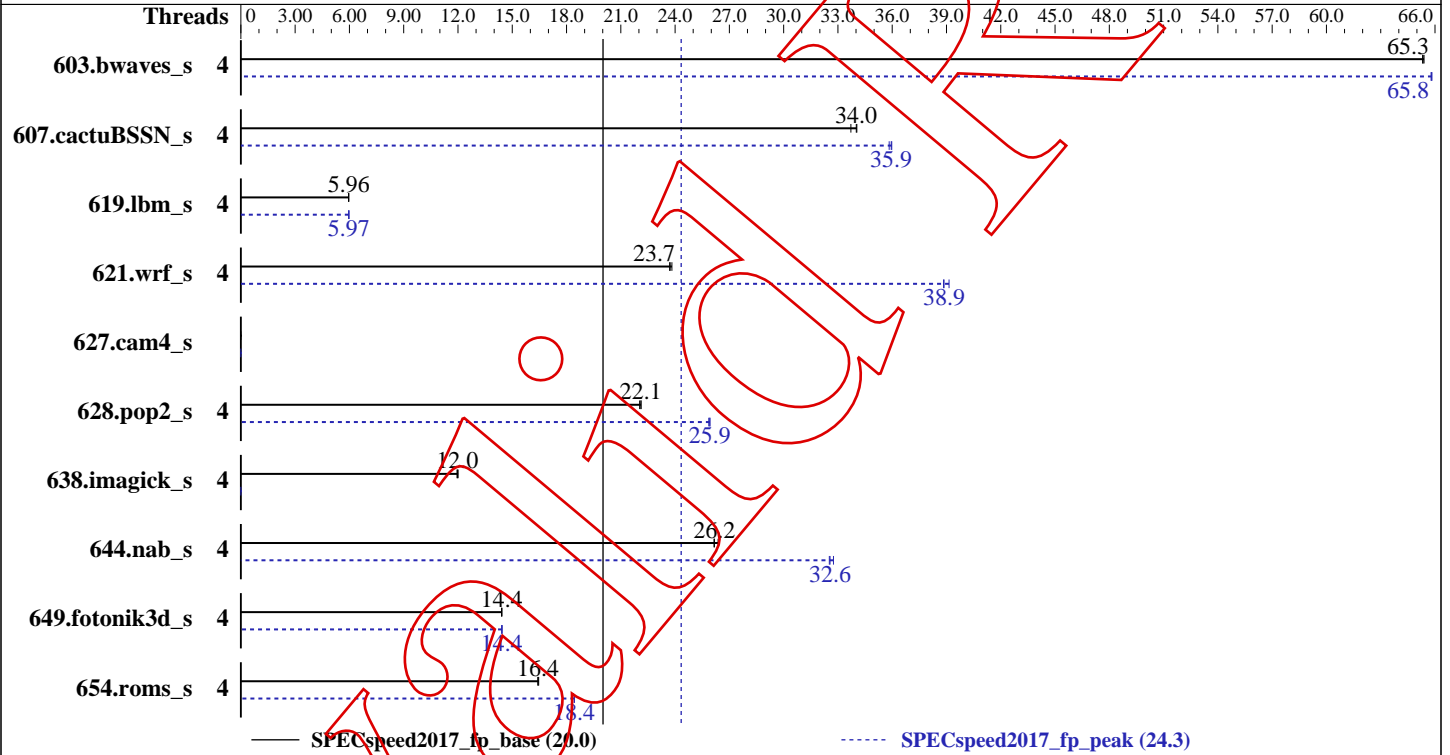
(Test Sponsor: Red Hat, Inc.)

SPECspeed2017_fp_base = 20.0

SPECspeed2017_fp_peak = 24.3

CPU2017 License: 0002991	**Test Date:** Apr-2024
Test Sponsor: Red Hat, Inc.	**Hardware Availability:** Now
Tested by: Vladimir Makarov	**Software Availability:**

Threads scale: 0 3.00 6.00 9.00 12.0 15.0 18.0 21.0 24.0 27.0 30.0 33.0 36.0 39.0 42.0 45.0 48.0 51.0 54.0 57.0 60.0 66.0

- 603.bwaves_s 4 — 65.3 / 65.8
- 607.cactuBSSN_s 4 — 34.0 / 35.9
- 619.lbm_s 4 — 5.96 / 5.97
- 621.wrf_s 4 — 23.7 / 38.9
- 627.cam4_s
- 628.pop2_s 4 — 22.1 / 25.9
- 638.imagick_s 4 — 12.0
- 644.nab_s 4 — 26.2 / 32.6
- 649.fotonik3d_s 4 — 14.4 / 14.4
- 654.roms_s 4 — 16.4 / 18.4

SPECspeed2017_fp_base (20.0)   SPECspeed2017_fp_peak (24.3)

Hardware

CPU Name:	AMD Ryzen 7 3800X 8-Core Processor
Max MHz.:	
Nominal:	2063.468
Enabled:	16 cores, 1 chip, threads/core
Orderable:	
Cache L1:	
L2:	512 KB
L3:	
Other:	
Memory:	32889052 kB
	'N GB (M x N GB nRxn PCn-nnnnnR-n, ECC)'
Storage:	69 GB' add more disk info here
Other:	

Software

OS:	Linux 5.5.11-200.fc31.x86_64
	5.5.11-200.fc31.x86_64
Compiler:	gcc version 14.0.1 20240403 (experimental) (GCC)
Parallel:	Yes
Firmware:	
File System:	ext4
System State:	multiuser
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other:	

Errors

'reportable' flag not set during run

627.cam4_s (base) did not have enough runs!

627.cam4_s (base) had invalid runs!

638.imagick_s (peak) did not have enough runs!

627.cam4_s (peak) did not have enough runs!

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Errors (Continued)

638.imagick_s (peak) had invalid runs!

627.cam4_s (peak) had invalid runs!

Run of 627.cam4_s (base) was not valid; status is CE

Run of 627.cam4_s (peak) was not valid; status is CE

Run of 638.imagick_s (peak) was not valid; status is CE

Unknown flags were used! See

   https://www.spec.org/cpu2017/Docs/runcpu.html#flagsurl

for information about how to get rid of this error.

Results Table

Benchmark	Base						Peak					
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	4	902	65.4	903	65.3	**903**	**65.3**	4	897	65.8	**897**	**65.8**	896	65.8
607.cactuBSSN_s	4	**490**	**34.0**	494	33.7	490	34.0	4	463	36.0	465	35.8	**464**	**35.9**
619.lbm_s	4	879	5.96	**879**	**5.96**	879	5.96	4	878	5.97	878	5.97	**878**	**5.97**
621.wrf_s	4	555	23.8	**557**	**23.7**	558	23.7	4	341	38.8	**340**	**38.9**	338	39.1
627.cam4_s	1	0.00	0.00					1	0.00	0.00				
628.pop2_s	4	537	22.1	539	22.0	**537**	**22.1**	4	458	25.9	**458**	**25.9**	459	25.9
638.imagick_s	4	**1205**	**12.0**	1208	11.9	1201	12.0	1	0.00	0.00				
644.nab_s	4	668	26.2	**668**	**26.2**	662	26.4	4	537	32.5	**537**	**32.6**	533	32.8
649.fotonik3d_s	4	633	14.4	632	14.4	**632**	**14.4**	4	**632**	**14.4**	632	14.4	632	14.4
654.roms_s	4	**959**	**16.4**	959	16.4	957	16.5	4	859	18.3	854	18.4	**855**	**18.4**
SPECspeed2017_fp_base =	**20.0**											
SPECspeed2017_fp_peak =	**24.3**											

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

General Notes

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

LD_LIBRARY_PATH = "/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/lib64:/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/lib::/usr/lib64/:/usr/lib/:/lib64"

OMP_STACKSIZE = "120M"

Platform Notes

 Sysinfo program /notnfs/vmakarov/spec2017/bin/sysinfo
 Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
 running on to-ryzen.usersys.redhat.com Wed Apr 3 22:25:28 2024

 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

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Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : AMD Ryzen 7 3800X 8-Core Processor
      1  "physical id"s (chips)
      16 "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 : 8
      siblings  : 16
      physical 0: cores 0 1 2 3 4 5 6 7

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):                    16
      On-line CPU(s) list:       0-15
      Thread(s) per core:        2
      Core(s) per socket:        8
      Socket(s):                 1
      NUMA node(s):              1
      Vendor ID:                 AuthenticAMD
      CPU family:                23
      Model:                     113
      Model name:                AMD Ryzen 7 3800X 8-Core Processor
      Stepping:                  0
      Frequency boost:           enabled
      CPU MHz:                   2057.006
      CPU max MHz:               3900.0000
      CPU min MHz:               2200.0000
      BogoMIPS:                  7785.73
      Virtualization:            AMD-V
      L1d cache:                 256 KiB
      L1i cache:                 256 KiB
      L2 cache:                  4 MiB
      L3 cache:                  32 MiB
      NUMA node0 CPU(s):         0-15
      Vulnerability Itlb multihit:   Not affected
      Vulnerability L1tf:            Not affected
      Vulnerability Mds:             Not affected
      Vulnerability Meltdown:        Not affected
      Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via
      prctl and seccomp
      Vulnerability Spectre v1:       Mitigation; usercopy/swapgs barriers and __user
      pointer sanitization
      Vulnerability Spectre v2:       Mitigation; Full AMD retpoline, IBPB conditional,
```

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Platform Notes (Continued)

```
     STIBP always-on, RSB filling
     Vulnerability Tsx async abort:   Not affected
     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 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 rdpru 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.

 From /proc/meminfo
    MemTotal:       32889052 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 From /etc/*release* /etc/*version*
    fedora-release: Fedora release 31 (Thirty One)
    os-release:
       NAME=Fedora
       VERSION="31 (Workstation Edition)"
       ID=fedora
       VERSION_ID=31
       VERSION_CODENAME=""
       PLATFORM_ID="platform:f31"
       PRETTY_NAME="Fedora 31 (Workstation Edition)"
       ANSI_COLOR="0;34"
    redhat-release: Fedora release 31 (Thirty One)
    system-release: Fedora release 31 (Thirty One)
    system-release-cpe: cpe:/o:fedoraproject:fedora:31

 uname -a:
    Linux to-ryzen.usersys.redhat.com 5.5.11-200.fc31.x86_64 #1 SMP Mon Mar 23 17:32:43
    UTC 2020 x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 2024-02-27 12:34
```

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Platform Notes (Continued)

```
  SPEC is set to: /notnfs/vmakarov/spec2017
     Filesystem                         Type   Size  Used Avail Use% Mounted on
     /dev/mapper/fedora_localhost--live-root ext4  69G   63G  2.9G  96% /

  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.

  (End of data from sysinfo program)
```

Compiler Version Notes

```
  ==============================================================================
   FC  607.cactuBSSN_s(base, peak)
  ------------------------------------------------------------------------------
  Using built-in specs.
  COLLECT_GCC=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/g++
  COLLECT_LTO_WRAPPER=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/libexec/gcc/x86_64-pc-linux-gnu/14.0.1/lto-wrapper
  Target: x86_64-pc-linux-gnu
  Configured with:
    /notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src/configure
    --prefix=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen
    --srcdir=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src
    --disable-bootstrap --disable-libcilkrts --enable-checking=release
    --enable-languages=c,c++,fortran
  Thread model: posix
  Supported LTO compression algorithms: zlib
  gcc version 14.0.1 20240403 (experimental) (GCC)
  Using built-in specs.
  COLLECT_GCC=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/gcc
  COLLECT_LTO_WRAPPER=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/libexec/gcc/x86_64-pc-linux-gnu/14.0.1/lto-wrapper
  Target: x86_64-pc-linux-gnu
  Configured with:
    /notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src/configure
    --prefix=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen
    --srcdir=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src
    --disable-bootstrap --disable-libcilkrts --enable-checking=release
    --enable-languages=c,c++,fortran
  Thread model: posix
  Supported LTO compression algorithms: zlib
  gcc version 14.0.1 20240403 (experimental) (GCC)
  Using built-in specs.
  COLLECT_GCC=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/gfortran
  COLLECT_LTO_WRAPPER=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/libexec/gcc/x86_64-pc-linux-gnu/14.0.1/lto-wrapper
  Target: x86_64-pc-linux-gnu
```

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Tested by:	Vladimir Makarov	**Software Availability:**	

Compiler Version Notes (Continued)

```
Configured with:
  /notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src/configure
  --prefix=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen
  --srcdir=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src
  --disable-bootstrap --disable-libcilkrts --enable-checking=release
  --enable-languages=c,c++,fortran
Thread model: posix
Supported LTO compression algorithms: zlib
gcc version 14.0.1 20240403 (experimental) (GCC)
------------------------------------------------------------------------

========================================================================
  CC  619.lbm_s(base, peak) 638.imagick_s(base) 644.nab_s(base, peak)
------------------------------------------------------------------------
Using built-in specs.
COLLECT_GCC=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/gcc
COLLECT_LTO_WRAPPER=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/libexec/gcc/x86_64-pc-linux-gnu/14.0.1/lto-wrapper
Target: x86_64-pc-linux-gnu
Configured with:
  /notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src/configure
  --prefix=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen
  --srcdir=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src
  --disable-bootstrap --disable-libcilkrts --enable-checking=release
  --enable-languages=c,c++,fortran
Thread model: posix
Supported LTO compression algorithms: zlib
gcc version 14.0.1 20240403 (experimental) (GCC)
------------------------------------------------------------------------

========================================================================
  FC  603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak) 654.roms_s(base,
      peak)
------------------------------------------------------------------------
Using built-in specs.
COLLECT_GCC=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/gfortran
COLLECT_LTO_WRAPPER=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/libexec/gcc/x86_64-pc-linux-gnu/14.0.1/lto-wrapper
Target: x86_64-pc-linux-gnu
Configured with:
  /notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src/configure
  --prefix=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen
  --srcdir=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src
  --disable-bootstrap --disable-libcilkrts --enable-checking=release
  --enable-languages=c,c++,fortran
Thread model: posix
Supported LTO compression algorithms: zlib
gcc version 14.0.1 20240403 (experimental) (GCC)
------------------------------------------------------------------------
```

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Compiler Version Notes (Continued)

```
==============================================================================
  CC  621.wrf_s(base, peak) 628.pop2_s(base, peak)
------------------------------------------------------------------------------
Using built-in specs.
COLLECT_GCC=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/gfortran
COLLECT_LTO_WRAPPER=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/libexec/gcc/x86_64-pc-linux-gnu/14.0.1/lto-wrapper
Target: x86_64-pc-linux-gnu
Configured with:
  /notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src/configure
  --prefix=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen
  --srcdir=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src
  --disable-bootstrap --disable-libcilkrts --enable-checking=release
  --enable-languages=c,c++,fortran
Thread model: posix
Supported LTO compression algorithms: zlib
gcc version 14.0.1 20240403 (experimental) (GCC)
Using built-in specs.
COLLECT_GCC=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/bin/gcc
COLLECT_LTO_WRAPPER=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen/libexec/gcc/x86_64-pc-linux-gnu/14.0.1/lto-wrapper
Target: x86_64-pc-linux-gnu
Configured with:
  /notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src/configure
  --prefix=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/inst.to-ryzen
  --srcdir=/notnfs/vmakarov/perf/sbox/gcc/local.spec2017.x86_64/src
  --disable-bootstrap --disable-libcilkrts --enable-checking=release
  --enable-languages=c,c++,fortran
Thread model: posix
Supported LTO compression algorithms: zlib
gcc version 14.0.1 20240403 (experimental) (GCC)
------------------------------------------------------------------------------
```

Base Unknown Flags

```
603.bwaves_s: "-fallow-argument-mismatchARRAY(0xa31fba0)
"-fallow-argument-mismatchARRAY(0xa323278)

607.cactuBSSN_s: "-fcommon -std=c++14ARRAY(0xa2f00e8)
"-fcommonARRAY(0xa30d140)
"-fallow-argument-mismatchARRAY(0xa3534d0)
"-fcommon -std=c++14ARRAY(0xa366400)

619.lbm_s: "-fcommonARRAY(0xa30d710) "-fcommonARRAY(0xa30ee88)

621.wrf_s: "-fallow-argument-mismatchARRAY(0xa30a940)
"-fcommonARRAY(0xa35dbb8)
```

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Base Unknown Flags (Continued)

621.wrf_s (continued):
"-fallow-argument-mismatchARRAY(0xa48b7e8)

628.pop2_s: "-fallow-argument-mismatchARRAY(0xa30a3d0)
"-fcommonARRAY(0xa374780)
"-fallow-argument-mismatchARRAY(0xa48c0e8)

638.imagick_s: "-fcommonARRAY(0xa35e3c8) "-fcommonARRAY(0xa48c310)

644.nab_s: "-fcommonARRAY(0xa35e458) "-fcommonARRAY(0xa48cae8)

649.fotonik3d_s: "-fallow-argument-mismatchARRAY(0xa35e308)
"-fallow-argument-mismatchARRAY(0xa348918)

654.roms_s: "-fallow-argument-mismatchARRAY(0xa370158)
"-fallow-argument-mismatchARRAY(0xa3f2d60)

Peak Unknown Flags

603.bwaves_s: "-fallow-argument-mismatchARRAY(0xa31fba0)
"-fallow-argument-mismatchARRAY(0xa323278)

607.cactuBSSN_s: "-fcommon -std=c++14ARRAY(0xa2f00e8)
"-fcommonARRAY(0xa30d140)
"-fallow-argument-mismatchARRAY(0xa3534d0)
"-fcommon -std=c++14ARRAY(0xa366400)

619.lbm_s: "-fcommonARRAY(0xa30d710) "-fcommonARRAY(0xa30ee88)

621.wrf_s: "-fallow-argument-mismatchARRAY(0xa30a940)
"-fcommonARRAY(0xa35dbb8)
"-fallow-argument-mismatchARRAY(0xa48b7e8)

628.pop2_s: "-fallow-argument-mismatchARRAY(0xa30a3d0)
"-fcommonARRAY(0xa374780)
"-fallow-argument-mismatchARRAY(0xa48c0e8)

638.imagick_s: "-fcommonARRAY(0xa35e3c8) "-fcommonARRAY(0xa48c310)

644.nab_s: "-fcommonARRAY(0xa35e458) "-fcommonARRAY(0xa48cae8)

649.fotonik3d_s: "-fallow-argument-mismatchARRAY(0xa35e308)
"-fallow-argument-mismatchARRAY(0xa348918)

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Peak Unknown Flags (Continued)

654.roms_s: "-fallow-argument-mismatchARRAY(0xa370158)
"-fallow-argument-mismatchARRAY(0xa3f2d60)

603.bwaves_s: "-fallow-argument-mismatchARRAY(0xa489b60)
"-fallow-argument-mismatchARRAY(0xa3f3108)
"-fltoARRAY(0xa4ff198)

607.cactuBSSN_s: "-fcommon -std=c++14ARRAY(0xa3f3328)
"-fcommonARRAY(0xa4ff390)
"-fallow-argument-mismatchARRAY(0xa4a1110)
"-fcommon -std=c++14ARRAY(0xa500b70)
"-fltoARRAY(0xa4ccc38)

619.lbm_s: "-fcommonARRAY(0xa4ed610) "-fcommonARRAY(0xa4ed4d8)
"-fltoARRAY(0xa500be8)

621.wrf_s: "-fallow-argument-mismatchARRAY(0xa505650)
"-fcommonARRAY(0xa4fc788)
"-fallow-argument-mismatchARRAY(0xa4fc770)
"-fltoARRAY(0xa4ee298)

628.pop2_s: "-fallow-argument-mismatchARRAY(0xa4ffb10)
"-fcommonARRAY(0xa489d70)
"-fallow-argument-mismatchARRAY(0xa4ee9a0)
"-fltoARRAY(0xa5061e8)

644.nab_s: "-fcommonARRAY(0xa505ab8) "-fcommonARRAY(0xa500c48)
"-fltoARRAY(0xa5066c8)

649.fotonik3d_s: "-fallow-argument-mismatchARRAY(0xa48bed8)
"-fallow-argument-mismatchARRAY(0xa4ee198)
"-fltoARRAY(0xa5038a0)

654.roms_s: "-fallow-argument-mismatchARRAY(0xa4ff930)
"-fallow-argument-mismatchARRAY(0xa4f71f0)
"-fltoARRAY(0xa5043b0)

Base Compiler Invocation

C benchmarks:
gcc

Fortran benchmarks:
gfortran

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Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

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SPECspeed2017_fp_base =   20.0

SPECspeed2017_fp_peak =   24.3

CPU2017 License: 0002991		**Test Date:**	Apr-2024
Test Sponsor:	Red Hat, Inc.	**Hardware Availability:**	Now
Tested by:	Vladimir Makarov	**Software Availability:**	

Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C (except as noted below):
`gfortran gcc`

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

Base Portability Flags

603.bwaves_s: `-DSPEC_LP64`
607.cactuBSSN_s: `-DSPEC_LP64`
619.lbm_s: `-DSPEC_LP64`
621.wrf_s: `-DSPEC_CASE_FLAG -fconvert=big-endian -DSPEC_LP64`
628.pop2_s: `-DSPEC_CASE_FLAG -fconvert=big-endian -DSPEC_LP64`
638.imagick_s: `-DSPEC_LP64`
644.nab_s: `-DSPEC_LP64`
649.fotonik3d_s: `-DSPEC_LP64`
654.roms_s: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:
`-O2 -mtune=generic -fopenmp -DSPEC_OPENMP`

Fortran benchmarks:
`-O2 -mtune=generic -DSPEC_OPENMP -fopenmp`

Benchmarks using both Fortran and C:

621.wrf_s: `-O2 -mtune=generic -DSPEC_OPENMP -fopenmp`

628.pop2_s: Same as 621.wrf_s

Benchmarks using Fortran, C, and C++:
`-O2 -mtune=generic -fopenmp -DSPEC_OPENMP`

SPEC CPU2017 Floating Point Speed Result

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SPECspeed2017_fp_base = 20.0

SPECspeed2017_fp_peak = 24.3

Peak Compiler Invocation

C benchmarks (except as noted below):
```
gcc
```

Fortran benchmarks:
```
gfortran
```

Benchmarks using both Fortran and C (except as noted below):
```
gfortran gcc
```

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

Peak Portability Flags

```
603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_CASE_FLAG -fconvert=big-endian -DSPEC_LP64
628.pop2_s: -DSPEC_CASE_FLAG -fconvert=big-endian -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64
```

Peak Optimization Flags

C benchmarks:

```
619.lbm_s: -Ofast -mtune=corei7 -march=core-avx2 -fopenmp
-DSPEC_OPENMP
```

```
644.nab_s: Same as 619.lbm_s
```

Fortran benchmarks:

```
603.bwaves_s: -Ofast -mtune=corei7 -march=core-avx2 -DSPEC_OPENMP
-fopenmp -fno-stack-arrays
```

```
649.fotonik3d_s: -Ofast -mtune=corei7 -march=core-avx2 -DSPEC_OPENMP
-fopenmp
```

```
654.roms_s: Same as 649.fotonik3d_s
```

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SPEC CPU2017 Floating Point Speed Result

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SPECspeed2017_fp_base = 20.0

SPECspeed2017_fp_peak = 24.3

CPU2017 License: 0002991	**Test Date:** Apr-2024
Test Sponsor: Red Hat, Inc.	**Hardware Availability:** Now
Tested by: Vladimir Makarov	**Software Availability:**

Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

621.wrf_s: -Ofast -mtune=corei7 -march=core-avx2 -DSPEC_OPENMP
-fopenmp

628.pop2_s: Same as 621.wrf_s

Benchmarks using Fortran, C, and C++:
-Ofast -mtune=corei7 -march=core-avx2 -fopenmp -DSPEC_OPENMP

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

Tested with SPEC CPU2017 v1.0.1 on 2024-04-03 22:25:27-0400.
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