SPEC® CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Inspur Corporation

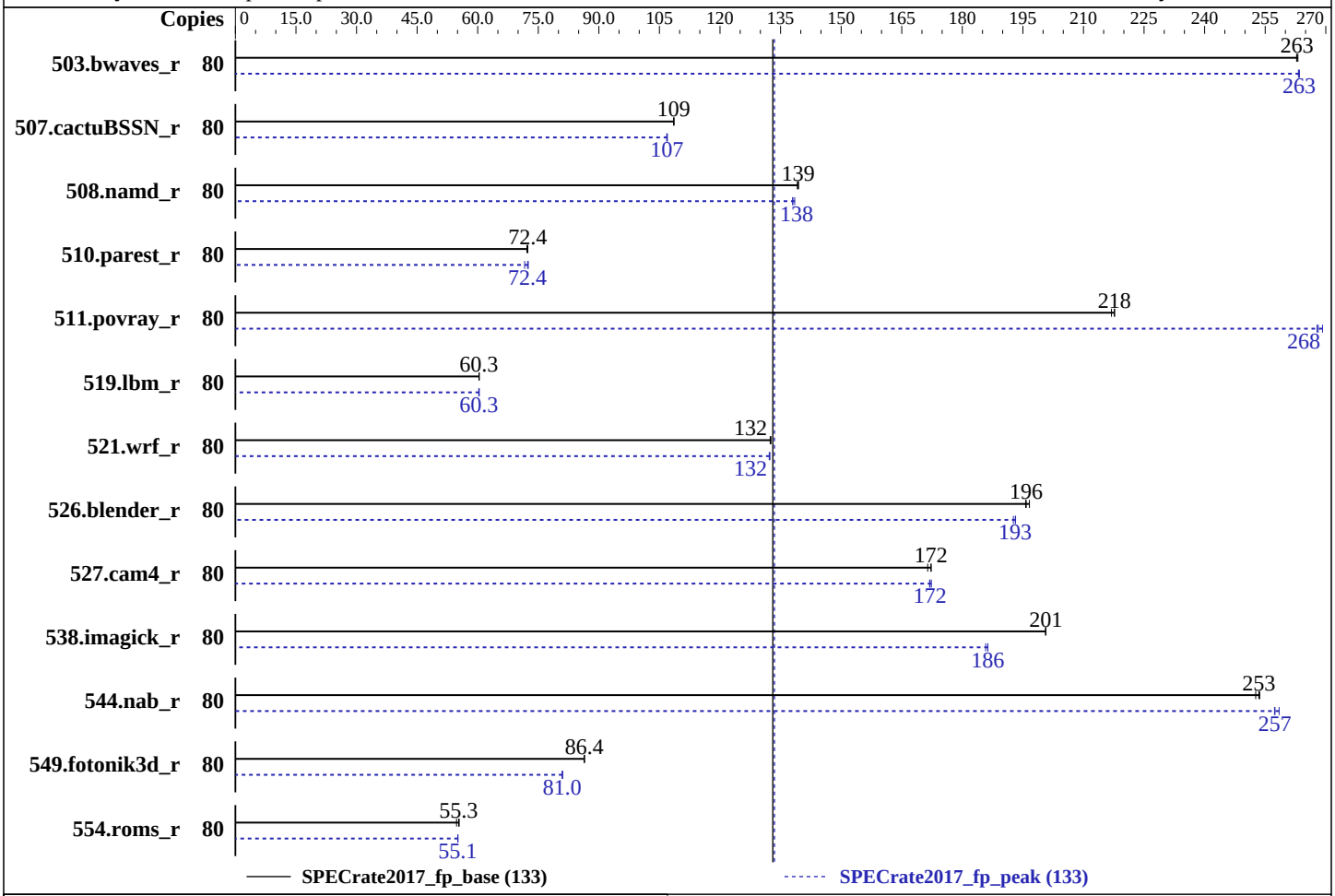
Inspur NF5280M4 (Intel Xeon E5-2698 v4)

SPECrate2017_fp_base = 133

SPECrate2017_fp_peak = 133

CPU2017 License: 3358
Test Sponsor: Inspur Corporation
Tested by: Inspur Corporation

Test Date: Dec-2016
Hardware Availability: Apr-2016
Software Availability: Nov-2016



Hardware

CPU Name:	Intel Xeon E5-2698 v4
Max MHz.:	3600
Nominal:	2200
Enabled:	40 cores, 2 chips, 2 threads/core
Orderable:	1,2 chips
Cache L1:	32 KB I + 32 KB D on chip per core
L2:	256 KB I+D on chip per core
L3:	50 MB I+D on chip per chip
Other:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2400P-R)
Storage:	1 x SATA, 450 GB, SSD
Other:	None

Software

OS:	Red Hat Enterprise Linux Server release 7.2 (Maipo) 3.10.0-327.el7.x86_64
Compiler:	C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.0.098 of Intel Fortran Compiler for Linux
Parallel:	No
Firmware:	American Megatrends Inc. Inspur 4.1.11
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	Not Applicable
Other:	Microquill SmartHeap V10.2

SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Inspur Corporation

Inspur NF5280M4 (Intel Xeon E5-2698 v4)

SPECrate2017_fp_base = 133

SPECrate2017_fp_peak = 133

CPU2017 License: 3358
Test Sponsor: Inspur Corporation
Tested by: Inspur Corporation

Test Date: Dec-2016
Hardware Availability: Apr-2016
Software Availability: Nov-2016

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	80	3053	263	3049	263	**3051**	**263**	80	**3046**	**263**	3045	263	3048	263
507.cactuBSSN_r	80	933	109	933	109	**933**	**109**	80	947	107	948	107	**948**	**107**
508.namd_r	80	545	139	546	139	**545**	**139**	80	**551**	**138**	549	138	551	138
510.parest_r	80	2890	72.4	2900	72.2	**2890**	**72.4**	80	2922	71.6	2886	72.5	**2892**	**72.4**
511.povray_r	80	**858**	**218**	861	217	858	218	80	**697**	**268**	697	268	694	269
519.lbm_r	80	1397	60.4	1398	60.3	**1397**	**60.3**	80	1399	60.3	1396	60.4	**1398**	**60.3**
521.wrf_r	80	1351	133	**1352**	**132**	1353	132	80	**1354**	**132**	1356	132	1354	132
526.blender_r	80	623	196	620	197	**622**	**196**	80	631	193	632	193	**631**	**193**
527.cam4_r	80	**812**	**172**	816	171	812	172	80	814	172	812	172	**813**	**172**
538.imagick_r	80	**991**	**201**	992	201	991	201	80	**1068**	**186**	1071	186	1068	186
544.nab_r	80	533	253	531	254	**531**	**253**	80	**523**	**257**	523	257	521	258
549.fotonik3d_r	80	3609	86.4	3607	86.4	**3608**	**86.4**	80	3849	81.0	3852	80.9	**3851**	**81.0**
554.roms_r	80	2321	54.8	**2299**	**55.3**	2294	55.4	80	**2308**	**55.1**	2309	55.1	2306	55.1

SPECrate2017_fp_base = 133

SPECrate2017_fp_peak = 133

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.
```

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

General Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/CPU2017RC4/lib/ia32:/home/CPU2017RC4/lib/intel64:/home/CPU2017RC4/sh10.2"

 Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
 memory using Redhat Enterprise Linux 7.2
 Transparent Huge Pages enabled by default
 Filesystem page cache cleared with:
 echo 1>       /proc/sys/vm/drop_caches
 runcpu command invoked through numactl i.e.:
 numactl --interleave=all runcpu <etc>
```

Platform Notes

```
 BIOS and OS configuration:
 SCALING_GOVERNOR set to Performance
```

(Continued on next page)

Platform Notes (Continued)

```
Hardware Prefetch set to Disable
VT Support set to Disable
C1E Support set to Disable
Sysinfo program /home/CPU2017RC4/Docs/sysinfo
Rev: r5007 of 2016-11-15 fc8dc82f217779bedfed4d694d580ba9
running on localhost.localdomain Sat Dec 10 07:16:05 2016

This section contains SUT (System Under Test) info as seen by some common
utilities.
For more information on this section, see
http://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2698 v4 @ 2.20GHz
      2 "physical id"s (chips)
      80 "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 : 20
      siblings  : 40
      physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
      physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
   cache size : 25600 KB

The view from numactl --hardware follows.  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 40 41 42 43 44 45 46 47 48 49
  node 0 size: 65414 MB
  node 0 free: 51177 MB
  node 1 cpus: 10 11 12 13 14 15 16 17 18 19 50 51 52 53 54 55 56 57 58 59
  node 1 size: 65536 MB
  node 1 free: 56018 MB
  node 2 cpus: 20 21 22 23 24 25 26 27 28 29 60 61 62 63 64 65 66 67 68 69
  node 2 size: 65536 MB
  node 2 free: 56059 MB
  node 3 cpus: 30 31 32 33 34 35 36 37 38 39 70 71 72 73 74 75 76 77 78 79
  node 3 size: 65536 MB
  node 3 free: 56048 MB
  node distances:
  node   0   1   2   3
    0:  10  11  21  21
    1:  11  10  21  21
    2:  21  21  10  11
    3:  21  21  11  10
```

(Continued on next page)

Platform Notes (Continued)

```
From /proc/meminfo
   MemTotal:       263845272 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.2 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.2"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
   redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

uname -a:
   Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29
   EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 9 16:57

SPEC is set to: /home/CPU2017RC4
   Filesystem            Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-home xfs   877G   40G  838G   5% /home

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.
  BIOS American Megatrends Inc. 4.1.8 06/12/2016
  Memory:
   16x Hynix HMA42GR7AFR4N-UH 16 GB 2 rank 2400 MHz
   8x NO DIMM NO DIMM

(End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
CC   507.cactuBSSN_r(base, peak) 511.povray_r(base, peak) 519.lbm_r(base,
     peak) 521.wrf_r(base, peak) 526.blender_r(base, peak) 527.cam4_r(base,
```

(Continued on next page)

Compiler Version Notes (Continued)

```
     peak) 538.imagick_r(base, peak) 544.nab_r(base, peak)
------------------------------------------------------------------------------
icc (ICC) 17.0.0 20160721
Copyright (C) 1985-2016 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
CXXC 507.cactuBSSN_r(base, peak) 508.namd_r(base, peak) 510.parest_r(base,
     peak) 511.povray_r(base, peak) 526.blender_r(base, peak)
------------------------------------------------------------------------------
icpc (ICC) 17.0.0 20160721
Copyright (C) 1985-2016 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
FC   503.bwaves_r(base, peak) 507.cactuBSSN_r(base, peak) 521.wrf_r(base,
     peak) 527.cam4_r(base, peak) 549.fotonik3d_r(base, peak)
     554.roms_r(base, peak)
------------------------------------------------------------------------------
ifort (IFORT) 17.0.0 20160721
Copyright (C) 1985-2016 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`icc -m64 -std=c11`

C++ benchmarks:
`icpc -m64`

Fortran benchmarks:
`ifort -m64`

Benchmarks using both Fortran and C:
`ifort -m64 icc -m64 -std=c11`

Benchmarks using both C and C++:
`icpc -m64 icc -m64 -std=c11`

Benchmarks using Fortran, C, and C++:
`icpc -m64 icc -m64 -std=c11 ifort -m64`

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_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char
527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG
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:
-xCORE-AVX2 -ipo -O3 -no-prec-div -auto-p32 -qopt-prefetch
-qopt-mem-layout-trans=3

C++ benchmarks:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-p32
-qopt-prefetch -qopt-mem-layout-trans=3 -L/sh10.2 -lsmartheap64

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -auto-p32 -qopt-prefetch
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs

Benchmarks using both C and C++:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-p32
-qopt-prefetch -qopt-mem-layout-trans=3 -L/sh10.2 -lsmartheap64

Benchmarks using Fortran, C, and C++:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-p32
-qopt-prefetch -qopt-mem-layout-trans=3 -nostandard-realloc-lhs
-L/sh10.2 -lsmartheap64

Peak Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
ifort -m64 icc -m64 -std=c11

Benchmarks using both C and C++:
icpc -m64 icc -m64 -std=c11

Benchmarks using Fortran, C, and C++:
icpc -m64 icc -m64 -std=c11 ifort -m64

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
-prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2 -ipo -O3
-no-prec-div -auto-p32 -qopt-prefetch -qopt-mem-layout-trans=3

C++ benchmarks:
-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2 -ipo
-O3 -no-prec-div -auto-p32 -qopt-prefetch -qopt-mem-layout-trans=3
-L/sh10.2 -lsmartheap64

Fortran benchmarks:
-prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2 -ipo -O3
-no-prec-div -qopt-prefetch -qopt-mem-layout-trans=3
-nostandard-realloc-lhs

Benchmarks using both Fortran and C:
-prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2 -ipo -O3
-no-prec-div -auto-p32 -qopt-prefetch -qopt-mem-layout-trans=3
-nostandard-realloc-lhs

(Continued on next page)

Peak Optimization Flags (Continued)

Benchmarks using both C and C++:
-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2 -ipo
-O3 -no-prec-div -auto-p32 -qopt-prefetch -qopt-mem-layout-trans=3
-L/sh10.2 -lsmartheap64

Benchmarks using Fortran, C, and C++:
-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2 -ipo
-O3 -no-prec-div -auto-p32 -qopt-prefetch -qopt-mem-layout-trans=3
-nostandard-realloc-lhs -L/sh10.2 -lsmartheap64

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Intel-ic17.0-official-linux64-revD.html
http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-V1.0-HSW.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic17.0-official-linux64-revD.xml
http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-V1.0-HSW.xml

SPEC is a registered trademark of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2017 v0.904.0 on 2016-12-10 07:16:04-0500.
Report generated on 2018-10-31 12:43:28 by CPU2017 PS formatter v6067.
Originally published on 2017-06-19.