



SPEC® CPU2017 Floating Point Rate Result

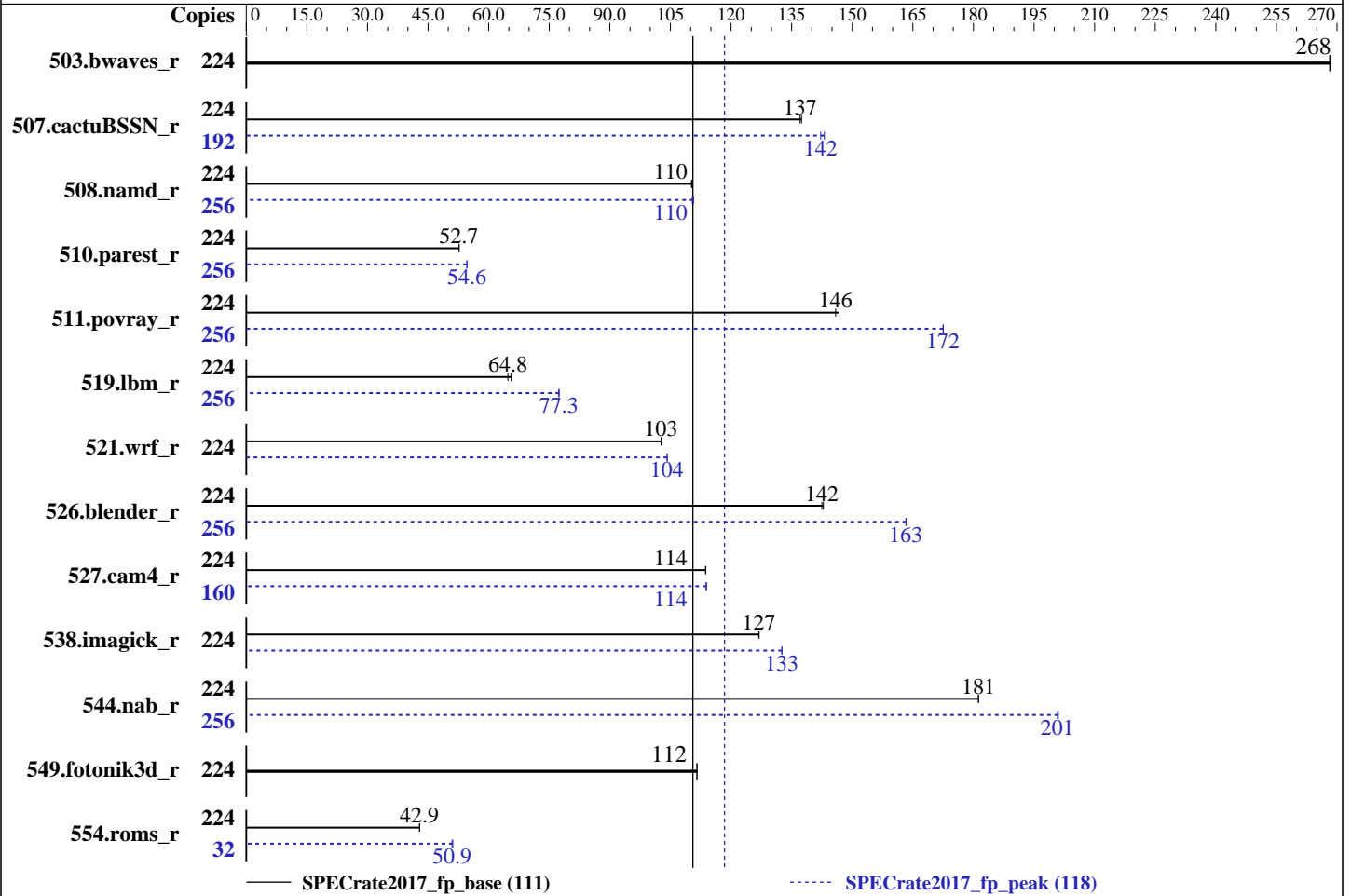
Copyright 2017 Standard Performance Evaluation Corporation

Oracle Corporation 1-Chip VM with SPARC M7

SPECrate2017_fp_base = 111
SPECrate2017_fp_peak = 118

CPU2017 License: 6
Test Sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test Date: Oct-2016
Hardware Availability: Oct-2015
Software Availability: Jul-2016



Hardware

CPU Name: SPARC M7
 Max MHz.: 4133
 Nominal: 4133
 Enabled: 32 cores, 1 chip, 8 threads/core
 Orderable: 1-16 CMIOU (on host)
 Cache L1: 16 KB I + 16 KB D on chip per core
 L2: 2 MB I on chip per chip (256 KB / 4 cores);
 4 MB D on chip per chip (256 KB / 2 cores)
 L3: 64 MB I+D on chip per chip (8 MB / 4 cores)
 Other: None
 Memory: 480 GB (16 x 32 GB 2Rx4 PC4-2400T-L, running
 at 2133, 16-way interleaved)
 Storage: 2.2 TB on 16 x 300 GB 10K RPM SAS disks
 served via COMSTAR over 8 Gb/s Fibre Channel
 from a Sun Fire X4270M2, arranged as
 8 x 2-way mirrors

(Continued on next page)

Software

OS: Oracle Solaris 11.3.10.5.0
 Compiler: C/C++/Fortran: Version 12.5 of Oracle Developer
 Studio
 Parallel: No
 Firmware: Sun System Firmware 9.5.2.g
 File System: zfs
 System State: Default
 Base Pointers: 32-bit
 Peak Pointers: 32-bit
 Other: None



SPEC CPU2017 Floating Point Rate Result

Copyright 2017 Standard Performance Evaluation Corporation

Oracle Corporation
1-Chip VM with SPARC M7

SPECrate2017_fp_base = 111
SPECrate2017_fp_peak = 118

CPU2017 License: 6
Test Sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test Date: Oct-2016
Hardware Availability: Oct-2015
Software Availability: Jul-2016

Hardware (Continued)

Other: None

Results Table

Benchmark	Base						Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	224	8372	268	8376	268			224	8372	268	8376	268		
507.cactuBSSN_r	224	2063	137	2069	137			192	1699	143	1710	142		
508.namd_r	224	1930	110	1931	110			256	2203	110	2197	111		
510.parest_r	224	11127	52.7	11123	52.7			256	12259	54.6	12263	54.6		
511.povray_r	224	3565	147	3585	146			256	3466	172	3464	173		
519.lbm_r	224	3601	65.6	3645	64.8			256	3484	77.5	3489	77.3		
521.wrf_r	224	4886	103	4882	103			224	4815	104	4817	104		
526.blender_r	224	2394	142	2388	143			256	2388	163	2386	163		
527.cam4_r	224	3446	114	3444	114			160	2459	114	2456	114		
538.imagick_r	224	4388	127	4391	127			224	4202	133	4201	133		
544.nab_r	224	2080	181	2080	181			256	2144	201	2146	201		
549.fotonik3d_r	224	7824	112	7825	112			224	7824	112	7825	112		
554.roms_r	224	8299	42.9	8298	42.9			32	995	51.1	999	50.9		

SPECrate2017_fp_base = 111

SPECrate2017_fp_peak = 118

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

The ZFS cache was limited to 12% of memory, and the fsflush daemon was told to run once every 10 seconds, checking for dirty pages more than 10 minutes old, using these settings in /etc/system:

```
set user_reserve_hint_pct=88
set autoup=600
set tune_t_fsflushr=10
```

General Notes

Submitted_by: john.henning@oracle.com
Submitted: Wed Nov 23 17:30:40 EST 2016
Submission: cpu2017-20161026-00034.sub



SPEC CPU2017 Floating Point Rate Result

Copyright 2017 Standard Performance Evaluation Corporation

Oracle Corporation
1-Chip VM with SPARC M7

SPECrate2017_fp_base = 111
SPECrate2017_fp_peak = 118

CPU2017 License: 6
Test Sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test Date: Oct-2016
Hardware Availability: Oct-2015
Software Availability: Jul-2016

Platform Notes

The System Under Test (SUT),
"1-chip VM with SPARC M7",
contains:

- 1 physical CPU chip
- 256 virtual CPUs
- 32 cores
- 480 GB memory
- OS: Oracle Solaris 11.3.10.5.0

The SUT is managed by a HOST with:

- OS: Oracle Solaris 11.3.5.1.0
- Oracle VM Server for SPARC v3.3
(included with Oracle Solaris)

From the standpoint of the HOST, the SUT is:

- A Logical Domain (LDom)
- One CMIOU (CPU, Memory, IO unit), containing:
 - 1 SPARC M7 chip
 - 16x 32 GB memory DIMMs
 - 1x DIMM is reserved
 - Therefore the SUT sees 480 GB, not 512

The HOST is part of an M7-16 server that has:

- Sun System Firmware 9.5.2.g 2015/12/07 11:57
- 16x CMIOUs
- 4x Domain Configurable Units (DCUs)
 - Each DCU has 4x CMIOUs
 - Each DCU is a Physical Domain (PDom)

From the standpoint of the M7-16, the HOST
is one PDom containing one DCU.

Additional information about SUT, LDom, and
PDom commands are in the platform flags file.

For Oracle VM Server information, see
Oracle Technical Network (OTN)

sysinfo program /cpu2017/rc3/Docs/sysinfo
Rev: r4961 of 2016-10-02 93f3ce875d5c7794a1fec4785739b79b
running on m7-16-002c-ld3 Wed Oct 19 12:37:15 2016

This section contains SUT (System Under Test) info as seen by
some common utilities. To remove or add to this section, see:
<http://www.spec.org/cpu2017/Docs/config.html#sysinfo>

From /usr/sbin/psrinfo
SPARC-M7 (chipid 3, clock 4133 MHz)

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017 Standard Performance Evaluation Corporation

Oracle Corporation
1-Chip VM with SPARC M7

SPECrate2017_fp_base = 111
SPECrate2017_fp_peak = 118

CPU2017 License: 6
Test Sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test Date: Oct-2016
Hardware Availability: Oct-2015
Software Availability: Jul-2016

Platform Notes (Continued)

1 chips
256 threads
4133 MHz

From kstat: 32 cores

From prtconf: 489984 Megabytes

```
/etc/release:
    Oracle Solaris 11.3 SPARC
uname -a:
    SunOS m7-16-002c-ld3 5.11 11.3 sun4v sparc sun4v
```

```
disk: df -h /cpu2017/rc3
Filesystem      Size  Used  Available Capacity  Mounted on
spec/cpu2017/rc3 2.4T  1.2G    1.7T      1%    /cpu2017/rc3
```

(End of data from sysinfo program)

Compiler Version Notes

```
=====
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)
-----
```

```
CC: Studio 12.5 Sun C++ 5.14 SunOS_sparc 2016/05/31
-----
```

```
=====
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,
    peak) 538.imagick_r(base, peak) 544.nab_r(base, peak)
-----
```

```
cc: Studio 12.5 Sun C 5.14 SunOS_sparc 2016/05/31
-----
```

```
=====
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)
-----
```

```
f90: Studio 12.5 Fortran 95 8.8 SunOS_sparc 2016/05/31
-----
```



SPEC CPU2017 Floating Point Rate Result

Copyright 2017 Standard Performance Evaluation Corporation

Oracle Corporation
1-Chip VM with SPARC M7

SPECrate2017_fp_base = 111
SPECrate2017_fp_peak = 118

CPU2017 License: 6
Test Sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test Date: Oct-2016
Hardware Availability: Oct-2015
Software Availability: Jul-2016

Base Compiler Invocation

C benchmarks:

cc

C++ benchmarks:

CC

Fortran benchmarks:

f95

Benchmarks using both Fortran and C:

f95 cc

Benchmarks using both C and C++:

CC cc

Benchmarks using Fortran, C, and C++:

CC cc f95

Base Portability Flags

503.bwaves_r: -D_FILE_OFFSET_BITS=64
507.cactuBSSN_r: -DSPEC_NO_C99_MATH_IN_CXX -D_FILE_OFFSET_BITS=64
508.namd_r: -D_FILE_OFFSET_BITS=64
510.parest_r: -D_FILE_OFFSET_BITS=64
511.povray_r: -D_FILE_OFFSET_BITS=64
519.lbm_r: -D_FILE_OFFSET_BITS=64
521.wrf_r: -D_FILE_OFFSET_BITS=64
526.blender_r: -xchar=u -DSPEC_NO_ISFINITE -D_FILE_OFFSET_BITS=64
527.cam4_r: -D_FILE_OFFSET_BITS=64
538.imagick_r: -D_FILE_OFFSET_BITS=64
544.nab_r: -D_FILE_OFFSET_BITS=64
549.fotonik3d_r: -D_FILE_OFFSET_BITS=64
554.roms_r: -D_FILE_OFFSET_BITS=64

Base Optimization Flags

C benchmarks:

-m32 -xpagesize=4M -DSPEC_SUPPRESS_OPENMP -fast -xipo=2
-xthroughput=yes -xalias_level=std -gl -lfast

C++ benchmarks:

-m32 -xpagesize=4M -std=c++03 -DSPEC_SUPPRESS_OPENMP -fast -xipo=2

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017 Standard Performance Evaluation Corporation

Oracle Corporation
1-Chip VM with SPARC M7

SPECrate2017_fp_base = 111
SPECrate2017_fp_peak = 118

CPU2017 License: 6
Test Sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test Date: Oct-2016
Hardware Availability: Oct-2015
Software Availability: Jul-2016

Base Optimization Flags (Continued)

C++ benchmarks (continued):

```
-xthroughput=yes -xalias_level=compatible -g -lfast
```

Fortran benchmarks:

```
-m32 -xpagesize=4M -DSPEC_SUPPRESS_OPENMP -fast -xipo=2  
-xthroughput=yes -gl -lfast
```

Benchmarks using both Fortran and C:

```
-m32 -xpagesize=4M -DSPEC_SUPPRESS_OPENMP -fast(cc) -fast(f95)  
-xipo=2 -xthroughput=yes -xalias_level=std -gl -lfast
```

Benchmarks using both C and C++:

```
-m32 -std=c++03 -xpagesize=4M -DSPEC_SUPPRESS_OPENMP -fast(CC)  
-fast(cc) -xipo=2 -xthroughput=yes -xalias_level=std  
-xalias_level=compatible -gl -g -lfast
```

Benchmarks using Fortran, C, and C++:

```
-m32 -xpagesize=4M -std=c++03 -DSPEC_SUPPRESS_OPENMP -fast(CC)  
-fast(cc) -fast(f95) -xipo=2 -xthroughput=yes -xalias_level=std  
-xalias_level=compatible -gl -g -lfast
```

Base Other Flags

C benchmarks:

```
-xjobs=64 -errfmt
```

C++ benchmarks:

```
-xjobs=64
```

Fortran benchmarks:

```
-xjobs=64
```

Benchmarks using both Fortran and C:

```
-xjobs=64 -errfmt
```

Benchmarks using both C and C++:

```
-xjobs=64 -errfmt
```

Benchmarks using Fortran, C, and C++:

```
-xjobs=64 -errfmt
```



SPEC CPU2017 Floating Point Rate Result

Copyright 2017 Standard Performance Evaluation Corporation

Oracle Corporation
1-Chip VM with SPARC M7

SPECrate2017_fp_base = 111
SPECrate2017_fp_peak = 118

CPU2017 License: 6
Test Sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test Date: Oct-2016
Hardware Availability: Oct-2015
Software Availability: Jul-2016

Peak Compiler Invocation

C benchmarks:

cc

C++ benchmarks:

CC

Fortran benchmarks:

f95

Benchmarks using both Fortran and C:

f95 cc

Benchmarks using both C and C++:

CC cc

Benchmarks using Fortran, C, and C++:

CC cc f95

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

```
519.lbm_r: -m32 -xpagesize=256M -DSPEC_SUPPRESS_OPENMP -fast  
-xipo=2 -xthroughput=yes -xprefetch_level=2  
-xprefetch=latx:3 -xalias_level=std -g1
```

```
538.imagick_r: -m32 -xpagesize=4M -DSPEC_SUPPRESS_OPENMP -fast  
-xthroughput=yes -xprefetch_level=2 -xalias_level=std  
-xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -g1 -lfast
```

```
544.nab_r: -m32 -xpagesize=4M -DSPEC_SUPPRESS_OPENMP -fast -xipo=2  
-xthroughput=yes -xalias_level=std  
-xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -g1
```

C++ benchmarks:

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017 Standard Performance Evaluation Corporation

Oracle Corporation
1-Chip VM with SPARC M7

SPECrate2017_fp_base = 111
SPECrate2017_fp_peak = 118

CPU2017 License: 6
Test Sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test Date: Oct-2016
Hardware Availability: Oct-2015
Software Availability: Jul-2016

Peak Optimization Flags (Continued)

```
508.namd_r: -m32 -xpagesize=4M -std=c++03 -DSPEC_SUPPRESS_OPENMP  
-fast -xipo=1 -xthroughput=yes -xalias_level=compatible  
-xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -g
```

```
510.parest_r: -m32 -xpagesize=256M -std=c++03 -DSPEC_SUPPRESS_OPENMP  
-fast -xipo=2 -xprefetch=no%auto -xalias_level=compatible  
-xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -g
```

Fortran benchmarks:

```
503.bwaves_r: basepeak = yes
```

```
549.fotonik3d_r: basepeak = yes
```

```
554.roms_r: -m32 -xpagesize=4M -DSPEC_SUPPRESS_OPENMP -fast  
-xprefetch_level=2 -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -g1
```

Benchmarks using both Fortran and C:

```
521.wrf_r: -m32 -xpagesize=4M -DSPEC_SUPPRESS_OPENMP -fast(cc)  
-fast(f95) -xthroughput=yes -xprefetch_level=3  
-xalias_level=std -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -g1
```

```
527.cam4_r: -m32 -xpagesize=4M -DSPEC_SUPPRESS_OPENMP -fast(cc)  
-fast(f95) -xthroughput=yes -xprefetch_level=2  
-xalias_level=std -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -g1 -lfast
```

Benchmarks using both C and C++:

```
511.povray_r: -library=stdcxx4 -xpagesize_heap=256M -m32  
-xpagesize_stack=4M -template=extdef -std=sun03  
-DSPEC_SUPPRESS_OPENMP -fast(CC) -fast(cc) -xipo=1  
-xthroughput=yes -xalias_level=std  
-xalias_level=compatible  
-xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -g1 -g
```

```
526.blender_r: -library=stlport4 -std=sun03 -m32 -xpagesize=256M  
-DSPEC_SUPPRESS_OPENMP -fast(CC) -fast(cc) -xipo=2  
-xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -g1 -g
```

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017 Standard Performance Evaluation Corporation

Oracle Corporation
1-Chip VM with SPARC M7

SPECrate2017_fp_base = 111
SPECrate2017_fp_peak = 118

CPU2017 License: 6
Test Sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test Date: Oct-2016
Hardware Availability: Oct-2015
Software Availability: Jul-2016

Peak Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++:

-m32 -xpagesize=256M -std=c++03 -DSPEC_SUPPRESS_OPENMP -fast(CC)
-fast(cc) -fast(f95) -xipo=2 -g1 -g

Peak Other Flags

C benchmarks:

-xjobs=64 -errfmt

C++ benchmarks:

-xjobs=64

Fortran benchmarks:

-xjobs=64

Benchmarks using both Fortran and C:

-xjobs=64 -errfmt

Benchmarks using both C and C++:

-xjobs=64 -errfmt

Benchmarks using Fortran, C, and C++:

-xjobs=64 -errfmt

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Oracle-Solaris-Studio12.5.html>

<http://www.spec.org/cpu2017/flags/Oracle-SPARC.html>

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

<http://www.spec.org/cpu2017/flags/Oracle-Solaris-Studio12.5.xml>

<http://www.spec.org/cpu2017/flags/Oracle-SPARC.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 v0.903.0 on 2016-10-19 15:37:10-0400.

Report generated on 2017-10-24 17:00:59 by CPU2017 PDF formatter v5748.

Originally published on 2017-06-19.