



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Sun Microsystems
(Test Sponsor: Oracle Corporation)

Sun Fire V490

SPECspeed®2017_fp_base = 1.00

SPECspeed®2017_fp_energy_base = 1.00

SPECspeed®2017_fp_peak = Not Run

SPECspeed®2017_fp_energy_peak = --

CPU2017 License: 6

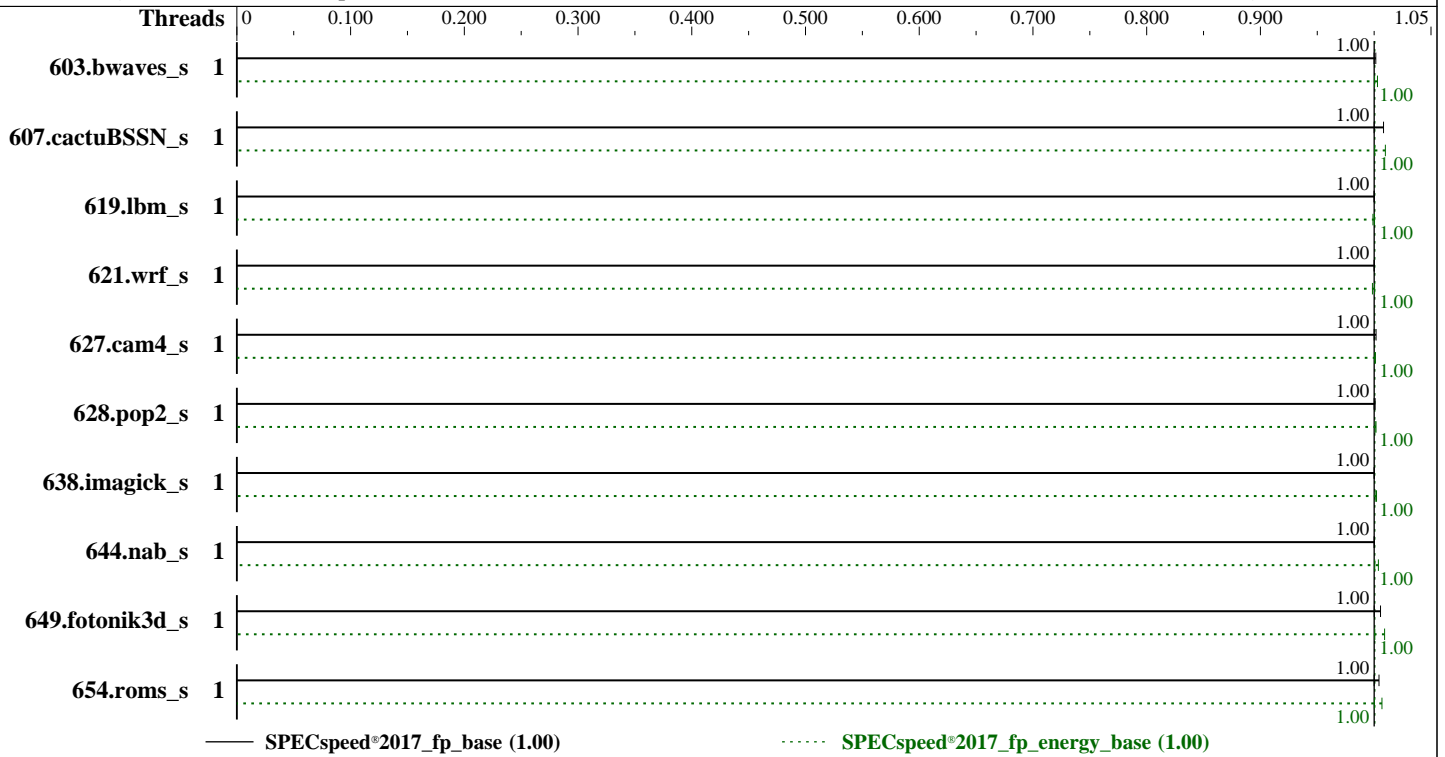
Test Sponsor: Oracle Corporation

Tested by: Oracle Corporation

Test Date: Nov-2016

Hardware Availability: Feb-2007

Software Availability: Jul-2016



Hardware

CPU Name: UltraSPARC-IV+
 Max MHz: 2100
 Nominal: 2100
 Enabled: 8 cores, 4 chips
 Orderable: 2 or 4 chips
 Cache L1: 64 KB I + 64 KB D on chip per core
 L2: 2 MB I+D on chip per chip
 L3: 32 MB I+D off chip per chip
 Other: None
 Memory: 32 GB (32 x 1 GB SDRAM Registered, ECC, 232-pin, Samsung M323S6459ET2-C1LC2)
 Storage: 300 GB ZFS mirror on 2x 15K RPM 300 GB Fibre Channel drives
 Other: None

Software

OS: Solaris 10 1/13
 Compiler: C/C++/Fortran: Version 12.5 of Oracle Developer Studio
 Parallel: Yes
 Firmware: Sun OpenBoot PROM (patch 121689-02) version 4.22.24, released Feb-2010
 File System: zfs
 System State: Default
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 Other: None
 Power Management: Set to defaults

Power

Max. Power (W): 1154.6
 Idle Power (W): 1081.39
 Min. Temperature (C): 20.25
 Elevation (m): 67
 Line Standard: 208 V / 60 Hz / 1 phase / 2 wire

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Power (Continued)

Provisioning: Line powered

Power Settings

Management FW: Version 2.2.2 of Sun Remote System Control (RSC)
Memory Mode: Normal

Power-Relevant Hardware

Power Supply: 2 x 1448 W (redundant)
Details: Type A187 1448 Watt AC Input Power Supply
Backplane: N/A
Other Storage: Sun Slimline 8x DVD-ROM (370-4412)
Storage Model #: 2 x XTC-FC1CF-300G15KZ, connected to on-board FC HBA
NICs Installed: 2 x on-board @ 1 GbE
NICs Enabled (FW/OS): 2 / 1
NICs Connected/Speed: 1 @ 1 Gbps
Other HW Model #: None

Power Analyzer

Power Analyzer: bur-x4170m2-002:8888
Hardware Vendor: Yokogawa
Model: WT210
Serial Number: 91GC38245
Input Connection: Serial over USB
Metrology Institute: NIST
Calibration By: Yokogawa USA
Calibration Label: 110316-91GC38245
Calibration Date: 3-Nov-2016
PTDaemon™ Version: 1.8.1 (f3ad5467; 2016-09-07)
Setup Description: Directly connected
Current Ranges Used: 10A
Voltage Range Used: 300V

Temperature Meter

Temperature Meter: bur-x4170m2-002:8889
Hardware Vendor: Digi
Model: WATCHPORT/H
Serial Number:
Input Connection: USB
PTDaemon Version: 1.8.1 (f3ad5467; 2016-09-07)
Setup Description: In front of SUT front panel primary air inlet

Base Results Table

Benchmark	Threads	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power	Seconds	Ratio	Energy (kJ)	Energy Ratio	Average Power	Maximum Power
603.bwaves_s	1	58911	1.00	64200	1.00	1090	1140	58997	1.00	64300	1.00	1090	1130						
607.cactuBSSN_s	1	16533	1.01	18100	1.01	1090	1150	16670	1.00	18200	1.00	1090	1150						
619.lbm_s	1	5238	1.00	5950	1.00	1140	1150	5237	1.00	5960	0.999	1140	1150						
621.wrf_s	1	13225	1.00	14400	1.00	1090	1100	13225	1.00	14500	0.999	1090	1100						
627.cam4_s	1	8863	1.00	9640	1.00	1090	1120	8848	1.00	9630	1.00	1090	1120						
628.pop2_s	1	11862	1.00	13000	1.00	1100	1120	11873	1.00	13000	1.00	1100	1110						
638.imagick_s	1	14425	1.00	15700	1.00	1090	1140	14424	1.00	15700	1.00	1090	1140						
644.nab_s	1	17472	1.00	19000	1.00	1090	1100	17468	1.00	18900	1.00	1080	1100						
649.fotonik3d_s	1	9115	1.00	10200	1.00	1120	1150	9065	1.01	10100	1.01	1120	1150						
654.roms_s	1	15745	1.00	17600	1.00	1120	1140	15678	1.00	17500	1.01	1120	1140						

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



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Operating System Notes

```
/etc/system settings
The ZFS cache may use 1 to 2 GB:
  zfs:zfs_arc_min=0x40000000
  zfs:zfs_arc_max=0x80000000
Once every 10 seconds, the page flusher
may write pages older than 600 seconds:
  autoup=600
  tune_t_fsflushr=10
Prefer local pages, and allow extra
memory to manage page metadata:
  lpg_alloc_prefer=1
  tsb_rss_factor=128
```

General Notes

Environment variables set by runcpu before the start of the run:
OMP_STACKSIZE = "120M"

Platform Notes

Sysinfo program /cpu2017/rc3/Docs/sysinfo
Rev: r4961 of 2016-10-02 93f3ce875d5c7794alfec4785739b79b
running on bur408-84 Fri Nov 18 11:35:01 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
UltraSPARC-IV+ (portid 0 impl 0x19 ver 0x22 clock 2100 MHz)
UltraSPARC-IV+ (portid 1 impl 0x19 ver 0x22 clock 2100 MHz)
UltraSPARC-IV+ (portid 2 impl 0x19 ver 0x22 clock 2100 MHz)
UltraSPARC-IV+ (portid 3 impl 0x19 ver 0x22 clock 2100 MHz)
4 chips
8 threads
2100 MHz
```

From kstat: 8 cores

From prtconf: 32768 Megabytes

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Platform Notes (Continued)

```
/etc/release:
  Oracle Solaris 10 1/13 s10s_u11wos_24a SPARC
uname -a:
  SunOS bur408-84 5.10 Generic_147147-26 sun4u sparc SUNW,Sun-Fire-V490

disk: df -h /cpu2017/rc3
Filesystem      size  used  avail capacity  Mounted on
rpool/cpu2017/rc3  213G  1.2G  108G      2%    /cpu2017/rc3

(End of data from sysinfo program)
```

Power Settings Notes

Device power management is disabled by default for server systems.
The UltraSPARC IV+ CPU does not support power management.

Compiler Version Notes

```
=====
C          | 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)
-----
cc: Studio 12.5 Sun C 5.14 SunOS_sparc 2016/05/31
cc: Warning: -xchip=native detection failed, falling back to -xchip=generic
-----

=====
C++, C     | 607.cactuBSSN_s(base pass 0)
-----
CC: Studio 12.5 Sun C++ 5.14 SunOS_sparc 2016/05/31
CC: Warning: -xchip=native detection failed, falling back to -xchip=generic
-----

=====
C++, C, Fortran | 607.cactuBSSN_s(base pass 0)
-----
cc: Studio 12.5 Sun C 5.14 SunOS_sparc 2016/05/31
cc: Warning: -xchip=native detection failed, falling back to -xchip=generic
-----

=====
C++, C, Fortran | 607.cactuBSSN_s(base pass 0)
-----
f90: Studio 12.5 Fortran 95 8.8 SunOS_sparc 2016/05/31
```

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Compiler Version Notes (Continued)

f90: Warning: -xchip=native detection failed, falling back to -xchip=generic

=====
C++, C, Fortran | 607.cactuBSSN_s(base pass 0)

cc: Studio 12.5 Sun C 5.14 SunOS_sparc 2016/05/31
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=====
C++, C, Fortran | 607.cactuBSSN_s(base pass 0)

f90: Studio 12.5 Fortran 95 8.8 SunOS_sparc 2016/05/31
f90: Warning: -xchip=native detection failed, falling back to -xchip=generic

=====
Fortran | 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)

f90: Studio 12.5 Fortran 95 8.8 SunOS_sparc 2016/05/31
f90: Warning: -xchip=native detection failed, falling back to -xchip=generic

=====
Fortran, C | 621.wrf_s(base pass 0, base pass 0) 627.cam4_s(base pass 0,
base pass 0) 628.pop2_s(base pass 0)

cc: Studio 12.5 Sun C 5.14 SunOS_sparc 2016/05/31
cc: Warning: -xchip=native detection failed, falling back to -xchip=generic

=====
Fortran, C | 621.wrf_s(base pass 0, base pass 0) 627.cam4_s(base pass 0,
base pass 0) 628.pop2_s(base pass 0)

f90: Studio 12.5 Fortran 95 8.8 SunOS_sparc 2016/05/31
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=====
Fortran, C | 621.wrf_s(base pass 0, base pass 0) 627.cam4_s(base pass 0,
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cc: Studio 12.5 Sun C 5.14 SunOS_sparc 2016/05/31

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cc: Warning: -xchip=native detection failed, falling back to -xchip=generic

```
-----
Fortran, C      | 621.wrf_s(base pass 0, base pass 0) 627.cam4_s(base pass 0,
                  | base pass 0) 628.pop2_s(base pass 0)
-----
```

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

f90: Warning: -xchip=native detection failed, falling back to -xchip=generic

Base Compiler Invocation

C benchmarks:
cc

Fortran benchmarks:
f95

Benchmarks using both Fortran and C:
f95 cc

Benchmarks using Fortran, C, and C++:
CC cc f95

Base Portability Flags

```
603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_NO_C99_MATH_IN_CXX -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64
627.cam4_s: -DSPEC_LP64
628.pop2_s: -DSPEC_LP64
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64
```



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Base Optimization Flags

C benchmarks:

```
-fast -xpagesize=4M -xprefetch_level=3 -xarch=sparcvis2
-xcache=64/32/4/1:2048/64/4/2:32768/64/4/2 -g1 -m64 -DSPEC_OPENMP
-xopenmp
```

Fortran benchmarks:

```
-fast -xpagesize=4M -xprefetch_level=3 -xarch=sparcvis2
-xcache=64/32/4/1:2048/64/4/2:32768/64/4/2 -g1 -DSPEC_OPENMP -m64
-xopenmp
```

Benchmarks using both Fortran and C:

```
-fast(cc) -fast(f95) -xpagesize=4M -xprefetch_level=3
-xarch=sparcvis2 -xcache=64/32/4/1:2048/64/4/2:32768/64/4/2 -g1
-DSPEC_OPENMP -m64 -xopenmp
```

Benchmarks using Fortran, C, and C++:

```
-std=c++03 -fast(CC) -fast(cc) -fast(f95) -xpagesize=4M
-xprefetch_level=3 -xarch=sparcvis2
-xcache=64/32/4/1:2048/64/4/2:32768/64/4/2 -g1 -g -m64 -DSPEC_OPENMP
-xopenmp
```

Base Other Flags

C benchmarks:

```
-xjobs=6 -errfmt
```

Fortran benchmarks:

```
-xjobs=6
```

Benchmarks using both Fortran and C:

```
-xjobs=6 -errfmt
```

Benchmarks using Fortran, C, and C++:

```
-xjobs=6 -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>



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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>

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

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