SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

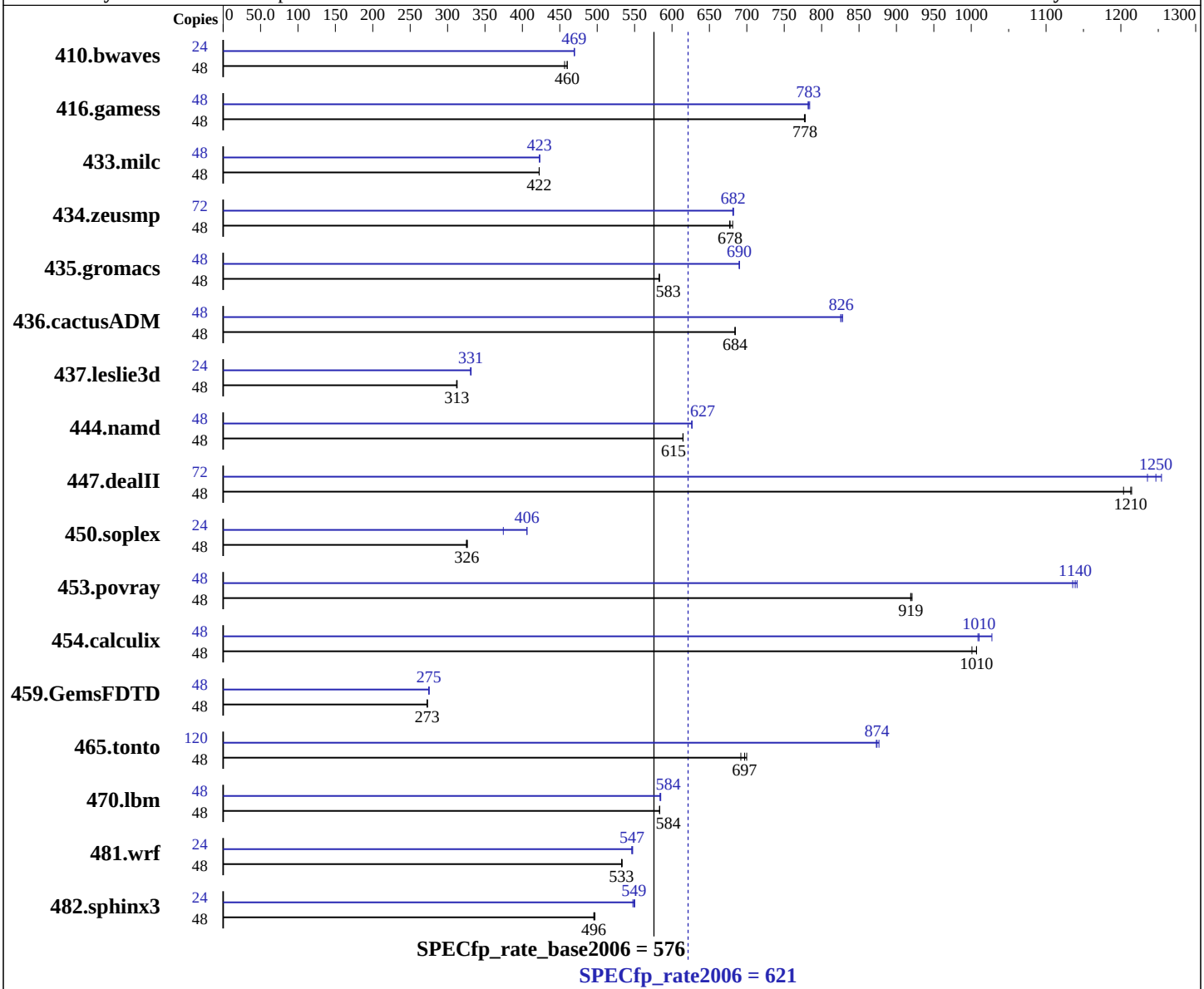
Sun Fire X4-2L (Intel Xeon E5-2697 v2 2.7GHz)

SPECfp®_rate2006 = 621

SPECfp_rate_base2006 = 576

CPU2006 license: 6
Test sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test date: Sep-2013
Hardware Availability: Sep-2013
Software Availability: Nov-2013



Hardware

CPU Name:	Intel Xeon E5-2697 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz:	2700
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 cores/chip, 2 threads/core
CPU(s) orderable:	2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

Continued on next page

Software

Operating System:	Solaris 11.1 (SRU 11)
Compiler:	C/C++: Version 12.3 of Oracle Solaris Studio 10/13 Patch Set (tested with nightly build 20130822)
Auto Parallel:	No
File System:	zfs
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	32/64-bit

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

Sun Fire X4-2L (Intel Xeon E5-2697 v2 2.7GHz)

SPECfp_rate2006 = 621

SPECfp_rate_base2006 = 576

CPU2006 license: 6
Test sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test date: Sep-2013
Hardware Availability: Sep-2013
Software Availability: Nov-2013

L3 Cache: 30 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 1 x 600 GB SAS, 10K RPM
Other Hardware: None

Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	48	1429	456	1418	460	**1419**	**460**	24	695	469	**695**	**469**	694	470
416.gamess	48	1208	778	**1209**	**778**	1210	777	48	1199	784	**1201**	**783**	1202	782
433.milc	48	1043	422	1043	423	**1043**	**422**	48	1042	423	**1042**	**423**	1042	423
434.zeusmp	48	**645**	**678**	641	681	645	677	72	962	681	960	682	**961**	**682**
435.gromacs	48	**588**	**583**	588	583	588	583	48	**497**	**690**	497	690	497	690
436.cactusADM	48	838	685	**838**	**684**	838	684	48	693	828	**694**	**826**	695	825
437.leslie3d	48	1446	312	**1443**	**313**	1443	313	24	682	331	681	332	**682**	**331**
444.namd	48	**626**	**615**	626	615	626	615	48	615	626	614	627	**614**	**627**
447.dealII	48	456	1200	452	1210	**453**	**1210**	72	**661**	**1250**	657	1250	667	1240
450.soplex	48	1226	327	1231	325	**1229**	**326**	24	534	374	493	406	**493**	**406**
453.povray	48	**278**	**919**	278	919	277	921	48	224	1140	**224**	**1140**	225	1140
454.calculix	48	396	1000	**393**	**1010**	393	1010	48	**392**	**1010**	385	1030	392	1010
459.GemsFDTD	48	1865	273	1869	272	**1866**	**273**	48	**1851**	**275**	1853	275	1849	275
465.tonto	48	**678**	**697**	683	692	675	700	120	1352	873	**1351**	**874**	1347	877
470.lbm	48	1131	583	**1130**	**584**	1130	584	48	1129	584	1127	585	**1129**	**584**
481.wrf	48	1005	533	1007	533	**1007**	**533**	24	491	546	**490**	**547**	490	547
482.sphinx3	48	1888	496	1882	497	**1887**	**496**	24	854	548	850	550	**852**	**549**

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 to bind processes to CPU threads with pbind(1)
```

Operating System Notes

```
ulimit -s unlimited  (shell): increases stack

/etc/system parameters
   autoup=1000
   tune_t_fsflushr=10
   zfs:zfs_arc_max=0x10000000
   zfs:zfs_arc_min=0x04001000
   lpg_alloc_prefer=1

gzip compression set using "zfs set compression=gzip <zfs-filesystem>"
```

Platform Notes

```
Default BIOS Settings were used.

Sysinfo program /export/home/cpu2006v1.2/Docs/sysinfo
: 6775  2011-08-16 #f7622badcf24e01c368b1db4377c
running on x4-2l-001 Sat Aug 31 21:28:33 2013

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/cpu2006/Docs/config.html#sysinfo


From /usr/sbin/psrinfo -pv
 Intel(r) Xeon(r) CPU E5-2697 v2 @ 2.70GHz
 x86 (GenuineIntel 306E4 family 6 model 62 step 4 clock 2693 MHz)

/usr/sbin/psrinfo -p:   2 chips
/usr/sbin/psrinfo -pv | grep "core has" | wc -l:  24 cores
/usr/sbin/psrinfo | wc -l: 48 threads

/usr/sbin/prtconf | grep "Memory size:": 262087 Megabytes

/etc/release:
                              Oracle Solaris 11.1 X86
uname -a:
SunOS x4-2l-001 5.11 11.1 i86pc i386 i86pc

disk: df -h
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/export/home      547G    23G       450G     5%    /export/home

(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
OMP_NUM_THREADS = "1"
```

Base Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Fortran benchmarks:
f90

Continued on next page

Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
cc f90

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_WORDS_LITTLEENDIAN
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-g -fast -xtarget=ivybridge -xipo=2 -m64 -xalias_level=std

C++ benchmarks:
-g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M
-xalias_level=compatible -library=stdcxx4

Fortran benchmarks:
-g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M

Benchmarks using both Fortran and C:
-g -fast(cc) -xtarget=ivybridge -xipo=2 -m64 -xalias_level=std
-fast(f90) -xpagesize=2M

Peak Compiler Invocation

C benchmarks:
cc

Continued on next page

Peak Compiler Invocation (Continued)

C++ benchmarks:
CC

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

Peak Portability Flags

436.cactusADM: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_WORDS_LITTLEENDIAN

Peak Optimization Flags

C benchmarks:

433.milc: -g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M -xalias_level=std

470.lbm: -g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=4K -lbsdmalloc

482.sphinx3: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge -xipo=2 -xpagesize=2M -xalias_level=std -xunroll=6 -W2,-Aujam:noinner -lumem -lmvec

C++ benchmarks:

444.namd: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge -xO3 -xprefetch=no%auto -m64 -xpagesize=2M -xalias_level=compatible -library=stlport4

447.dealII: -g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M -xalias_level=compatible -library=stdcxx4 -xvector -xprefetch -xrestrict

450.soplex: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge -xipo=2 -xpagesize=2M -xalias_level=compatible -library=stlport4 -m32 -qoption iropt -Rujam -qoption iropt -Rtile

Continued on next page

Peak Optimization Flags (Continued)

453.povray: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge -xprefetch=no%auto -xipo=2 -m64 -xpagesize=2M -xalias_level=compatible -qoption iropt -Atile:skew=on -qoption iropt -Ainline:cs=700 -library=stdcxx4

Fortran benchmarks:

410.bwaves: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M

416.gamess: -g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M -xunroll=1 -xvector=no%simd -xprefetch_level=1

434.zeusmp: Same as 410.bwaves

437.leslie3d: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge -xipo=2 -m64

459.GemsFDTD: Same as 410.bwaves

465.tonto: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M -xvector=lib -xalias -lbsdmalloc -stackvar

Benchmarks using both Fortran and C:

435.gromacs: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M -fsimple=2 -Qoption ube -fsimple=3 -xvector=no%simd

436.cactusADM: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M -lumem -xprefetch_level=3

454.calculix: -g -fast(cc) -fast(f90) -xtarget=ivybridge -xipo=0 -m64 -xpagesize=2M -xprefetch_level=2 -xprefetch_auto_type=indirect_array_access -Qoption ube -xprefetch_mult=24 -xunroll=2

481.wrf: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xtarget=ivybridge -xipo=2 -m64

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-x86_64.20130924.html
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.20120425.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-x86_64.20130924.xml
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.20120425.xml

SPEC and SPECfp are registered trademarks 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 webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 16:08:39 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 24 September 2013.